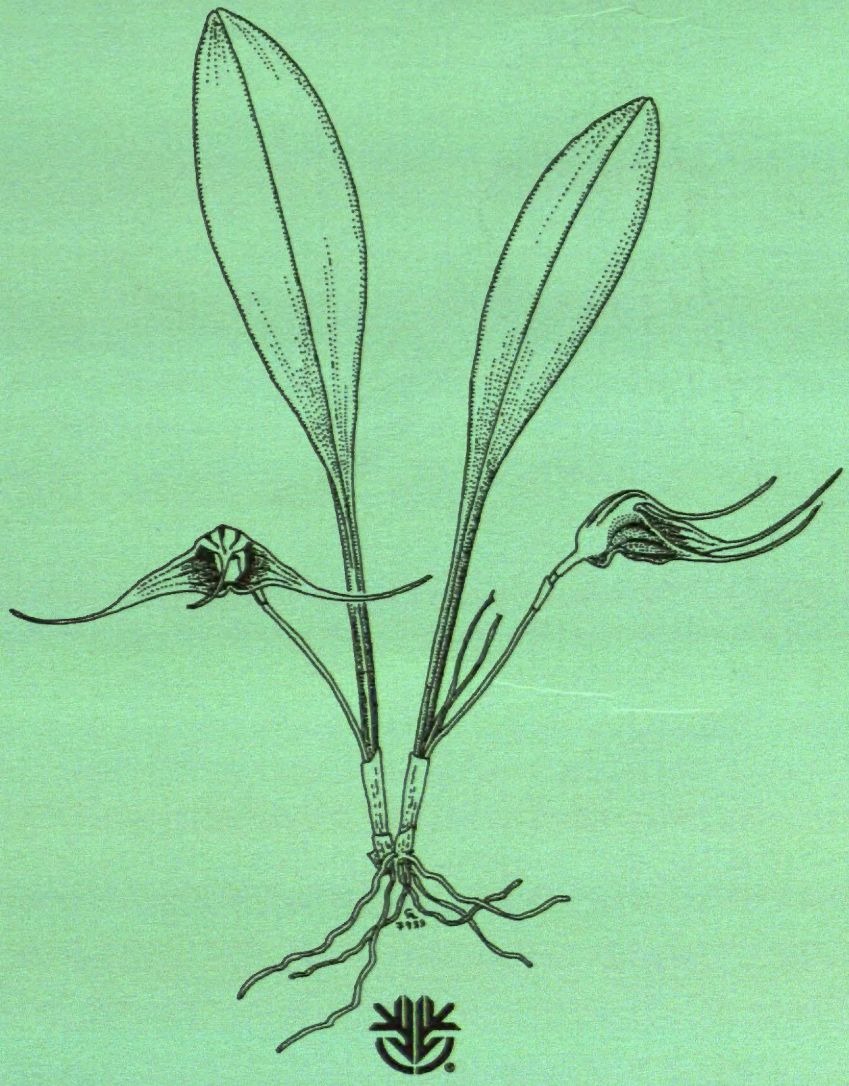
ICONES PLEUROTHALLIDINARUM
XXII

SYSTEMATICS OF MASDEVALLIA

PART THREE



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ICONES PLEUROTHALLIDINARUM
XXII

SYSTEMATICS OF MASDEVALLIA

PART THREE

M. Subgenus MASDEVALLIA
Section MASDEVALLIA
Subsection MASDEVALLIA

M. Subgenus MASDEVALLIA
Section MINUTAE

Carlyle A. Luer

Missouri Botanical Garden

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PREFACE

Part One contains the species attributed to subgenus *Polyantha* at that time. Part Two contains about another 100 species in four sections of subgenus *Masdevallia* and the subgenus *Pygmaeia*. Part Three contains subsection *Masdevallia* and section *Minutae*, together for about another 100 species.

The two species that have been added recently to subgenus *Polyantha* are included at the end of Part Three. To keep the work current, these pages are numbered to place them in alphabetical sequence within the section; that is, page 89a can be removed, if desired, and inserted between pages 88 and 89 of Part One. This maneuver is accomplished simply in the loose leaf edition, but care should be exercised in removing pages in the glue-bound edition. Further additions are inevitable, hence the present format with text on the odd-numbered page and the illustration on the reverse, the even-numbered page. The pages and plates of Part Three are numbered as continuations of Part Two, beginning with page 519 and Plate 262.

Replacement pages with changes in text or keys will eventually be included. (The first for *Masdevallia virgo-cuencae* follows the index.) These pages will retain the same number but with an exponent (^{1}) to indicate that it is the first change to that page. The page it replaces should be discarded. A page with the exponent (^{2}) will indicate that it is the second change to that page. Most changes will not be printed until the final part.

Indefatigable proofreaders of Part Three have been Mrs. Amy McPherson and Mr. and Mrs. H. Phillips Jesup.

Additional species for Part One:

Masdevallia acrochordonia Rchb.f., sect. *Alaticaules*, page 23a, to *precede* page 23.

Masdevallia frilehmannii Luer & Vásquez, sect. *Alaticaules*, page 89a, to *precede* page 89.

Masdevallia luziae-mariae Luer & Vásquez, sect. *Alaticaules*, page 113a, to *precede* page 113.

Replacement page for **M. virgo-cuencae**, Part One.

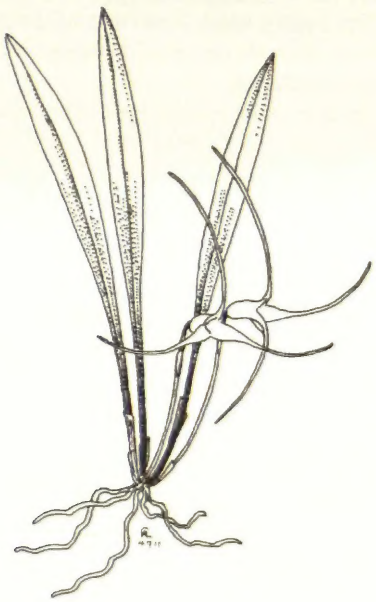
Appendix: **Masdevallia idae** Luer & Arias, sp. nov.

Abbreviations of the names of authors are in accordance with the recommendations in *Authors of Plant Names*, R.K. Brummit and C.E. Powell, Royal Botanic Gardens, Kew, 1992.

Acronyms of the names of herbaria are in accordance with *Index Herbariorum, Part I: Herbaria of the World*, Eighth Edition, P.K. Holmgren, N.H. Holmgren, and Lisa C. Barnett, New York Botanical Garden, 1990.

Abbreviations of the names of publications follow the recommendations in *Botanico-Periodicum-Huntianum* (BPH), G.H.M. Lawrence, A.F.G. Buchheim, G.S. Daniels, and H. Dolezal, Hunt Botanical Library, Pittsburgh, PA, 1968.

The illustrations are selected from a large accumulation of evolving styles made over a 25-year period. The illustrations inked by Stig Dalström since 1992 bear his initial-logo beneath my initials as the illustrator.

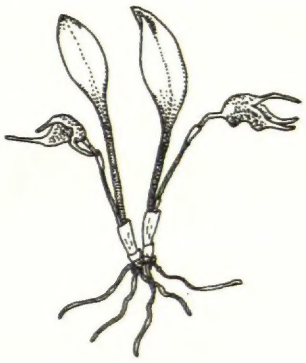


SYSTEMATICS
OF
MASDEVALLIA
PART THREE

CONTENTS

Masdevallia laevis Lindl. ..... Frontispiece
Masdevallia Sect. *Masdevallia* 519
Masdevallia Sect. *Masdevallia* subsect. *Masdevallia* 520-718
Key to the species 523-528
Masdevallia Sect. *Minutae* 519-774
Key to the species 721-723
Cumulative Index 775-780

Additional species follow the index.



Masdevallia laevis Lindl., Province of Imbabura, Ecuador, Mariano Acosta, altitude 3200 meters above sea level, January 1979, photo by Carlyle A. Luer.

MASDEVALLIA SECTION MASDEVALLIA

Masdevallia subgenus **Masdevallia** section **Masdevallia**
Type: *Masdevallia uniflora* Ruiz & Pav.
Ety.: Named in honor of José Masdevall, physician in the court of Charles III of Spain.

This section consists of a large number of interrelated species characterized by single-flowered peduncles. The often colorful sepals are not usually as thick and fleshy, nor as rigid as those in section *Coriaceae*, or subgenus *Polyanthae*. The depth of connation of the sepals varies from a shallow, widely expanded sepaline cup to a long, cylindrical or inflated, sepaline tube. Simple key characters, such as the degrees of connation of the sepals, are used to define some subsections. Because of a gradual transition, some species are difficult to assign to a subsection. They should be sought in either of the two possibilities. Subsection *Coccineae* is identified by the synsepal broadly expanded beyond the tube. Subsection *Oscillantes* is similar to subsection *Caudatae*, but difffers in the motile lip hinged into a cavity on the underside of the base of the lip.

The petals of most species of the section are callous along the margin, many with a well-developed, retrorse process near or at the base. The lip is relatively thin, but with exceptions. Compared to the thick, verrucose lip of section *Coriaceae*, the lip is thin and smooth. It is also without marginal folds, but a longitudinal pair of calli commonly are present on the disc. The tip is variously callous. The species are widely distributed in the Andes and across South America into the Guyanas; none is known from Central America or southern Brazil. Five subsections are defined.

KEY TO THE SUBSECTIONS OF SECTION *MASDEVALLIA*

1 Lip convex and thickened basally, balanced by a thin, delicate extension from the column-foot that is inserted into a cavity beneath the base of the lip; sepals variously connate.....subsect. *Oscillantes*
1' Lip not prominently convex basally and concave beneath with a thin extension from the column-foot.....2

2 Sepals connate basally to form a short, gaping, sepaline cup, with the free portions widely spread, exposing the column, petals and lip.....subsect. *Caudatae*
2' Sepals connate above the base to form a sepaline cup or tube.....3

3 Sepals connate into a cylindrical tube with the lateral sepals abruptly and broadly expanded beyond the tube.....subsect. *Coccineae*
3' Sepals variously connate into a cup or tube with the lateral sepals not broadly expanded beyond the tube 4

4 Sepals connate into a cup or a cylindrical tube .....subsect. *Masdevallia*
4' Sepals deeply connate into a narrowly cylindrical tube.....subsect. *Saltatrices*

SUBSECTION *MASDEVALLIA*

Masdevallia subgenus **Masdevallia** section **Masdevallia** subsection **Masdevallia**.

Type: *Masdevallia uniflora* Ruiz & Pav.
Ety.: From the Latin *uniflorus*, "single-flowered," referring to the inflorescence.

Syn.: *Masdevallia* sect. *Clausae-porrectae* Rchb.f., Gard. Chron. n.s. 4: 388, 1875.
Type: *Masdevallia ionocharis* Rchb.f.

Syn.: *Masdevallia* sect. *Urceolares* Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 43, 1925.
Type: *Masdevallia urceolaris* Kraenzl.

Syn.: *Masdevallia* subsect. *Tubulosae* (Rchb.f.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 16: 38, 1986, in part.
Type: *Masdevallia tubulosa* Lindl.

Syn.: *Masdevallia* sect. *Eumasdevallia* Veitch, Man. Orch. Pl. 5: 17, 1889.
Type: *Masdevallia uniflora* Ruiz & Pav.

The species of this subsection are those most closely allied to *M. uniflora*, the first species described in the genus. Except for a few shortly repent species, the habit is caespitose, with small to large, petiolate to subpetiolate leaves and a single-flowered peduncle. The sepals are connate from about midway into a cup or farther into a tube, with all degrees of connation present.

Subsection *Masdevallia* lies between two extremes. The sepals of subsection *Caudatae* are shallowly connate into a widely expanded cup with exposed lip and column flanked by the petals. The sepals of subsection *Saltatrices* are deeply connate into a more or less arcuate, often constricted cylindrical tube.

In subsection *Masdevallia*, the sepaline cup or tube is broad, funnel-shaped, cylindrical, or sometimes inflated. *Masdevallia tubulosa* is included here because the narrow, cylindrical tube is neither arcuate nor constricted, and otherwise, it is similar to species clearly belonging to subsection *Masdevallia*. As in the other two subsections, the petals are callous on the lower margin, and form a small to conspicuous process at or above the base, and the lip is simple with an apical callus.

BINOMIALS PUBLISHED IN *MASDEVALLIA* ATTRIBUTABLE TO SUBSECTION *MASDEVALLIA*

M. affinis Lindl. = **M. laevis**
M. affinis subsp. *maculigera* (Schltr.) Luer = **M. laevis**
M. affinis subsp. *petiolaris* (Schltr.) Luer = **M. laevis**
M. aspera Rchb.f. ex Kraenzl. = **M. paivaëana**
M. assurgens Luer & Escobar.....Plates 262, 263.
M. blanda Königer = **M. crassicaulis**
M. buchtienii Schltr. = **M. scandens**
M. burianii Luer & Dalström .....Plate 264.
M. calocodon Luer & Vásquez = **M. yungasensis**
M. carpishica Luer & Cloes .....Plate 265.
M. casta Kraenzl. = **M. tubulosa**
M. chaparensis Hashimoto.....Plate 266.
M. chiquindensis Kraenzl. = **M. leucantha**
M. chlorotica Kraenzl. = **M. laevis**
M. chrysochaete Lehm. = **M. strumifera**
M. chrysoneura Lehm. & Kraenzl. = **M. uncifera**
M. clandestina Luer & Escobar.....Plate 267.
M. cleistogama Luer .....Plate 268.
M. condorensis Luer & Hirtz.....Plate 269.
M. confusa Kraenzl. = **M. laevis**

M. corderoana Lehm. & Kraenzl. ..... Plate 270.
M. cranion Luer ..... Plate 271.
M. crassicaulis Luer & J.Portilla ..... Plate 272.
M. datura Luer & Vásquez ..... Plate 273.
M. deniseana Luer & J.Portilla ..... Plate 274.
M. dreisei Luer ..... Plate 275.
M. dudleyi Luer ..... Plate 276.
M. elachys Luer ..... Plate 277.
M. elegans Luer & Escobar ..... Plates 278, 279.
M. encephala Luer & Escobar ..... Plate 280.
M. ensata Rchb.f. ..... Plate 281.
M. exquisita Luer & Hirtz ..... Plate 282.
M. falcago Rchb.f. ..... Plate 283.
M. figueroae Luer ..... Plates 284, 285, 286.
M. filamentosa Kraenzl. = **M. pumila**
M. flaccida Kraenzl. = **M. uncifera**
M. gilbertoi Luer & Escobar ..... Plate 287.
M. glandulosa Königer ..... Plate 288.
M. glomerosa Luer & Andreetta ..... Plate 289.
M. gomeziana Lehm. & Kraenzl. = **M. laevis**
M. grandiflora C.Schweinf. = **M. pumila**
M. guayanensis Lindl. ex Benth. ..... Plate 290.
M. hartmanii Luer ..... Plate 291.
M. hajekii Luer = **M. chaparensis**
M. heideri Königer ..... Plate 292.
M. helenae Luer ..... Plate 293.
M. hians Linden & Rchb.f. ..... Plate 294.
M. hieroglyphica Rchb.f. ..... Plate 295.
M. hymenantha Rchb.f. ..... Plate 296.
M. ionocharis Rchb.f. ..... Plate 297.
M. ionocharis var. *approviata* hort. ex Woolward = **M. ionocharis**
M. ishikoi Luer ..... Plate 298.
M. juan-albertoi Luer & Arias ..... Plate 299.
M. kalbreyeri (Rchb.f.) ex Kraenzl. = **M. urceolaris**
M. karineae Nauray ex Luer ..... Plate 300.
M. laevis Lindl. ..... Plates 301, 302, 303, 304, 305.
M. lamprotyria Königer ..... Plate 306.
M. leonardoi Luer ..... Plate 307.
M. lepida Rchb.f. = **M. laevis**
M. leucantha Lehm. & Kraenzl. ..... Plate 308.
M. lewisii Luer & Vásquez ..... Plate 309.
M. lilacina Königer ..... Plate 310.
M. lineolata Königer ..... Plate 311.
M. lucernula Königer ..... Plate 312.
M. macropus Lehm. & Kraenzl. ..... Plate 313.
M. maculigera Schltr. = **M. laevis**
M. manarana Carnevali & Ramírez = **M. guayenensis**
M. manoloi Luer & Arias ..... Plate 314.
M. mastodon Rchb.f. ..... Plate 315.
M. maxillariiformis Lehm. & Kraenzl. = **M. strumifera**
M. medinae Luer & Portilla ..... Plate 316.
M. melanoglossa Luer ..... Plate 317.
M. midas Luer ..... Plate 318.
M. nebulina Luer ..... Plate 319.
M. nitens Luer ..... Plate 320.

M. norops Luer & Andreetta.....Plate 321.
M. odontocera Luer & Escobar .....Plate 322.
M. os-viperae Luer & Andreetta.....Plates 323, 324.
M. paivaëana Rchb.f. .....Plate 325.
M. pantherina Lehm. & Kraenzl. = **M. laevis**
M. pastensis Kraenzl. = **M. uncifera**
M. patriciana Luer & Malo .....Plate 326.
M. petiolaris Schltr. = **M. laevis**
M. phacopsis Luer & Dalström.....Plate 327.
M. picta Luer.....Plate 328.
M. popowiana Königer & J.G.Weinm. .....Plate 329.
M. pumila Poepp. & Endl. .....Plate 330.
M. quasimodo Luer & Teague .....Plate 331.
M. rana-aurea Luer = **M. os-viperae**
M. rimarima-alba Luer .....Plate 332.
M. roseola Luer.....Plate 333.
M. scandens Rolfe .....Plate 334.
M. schoonenii Luer .....Plate 335.
M. selenites Königer .....Plate 336.
M. soennemarkii Luer & Dalström .....Plate 337.
M. solomonii Luer & Vásquez.....Plate 338.
M. stenantha Lehm. & Kraenzl. = **M. tubulosa**
M. Xstrumella Luer .....Plate 339.
M. strumifera Rchb.f. .....Plates 340, 341.
M. suinii Luer & Hirtz .....Plate 342.
M. syringodes Luer & Andreetta = **M. tubulosa**
M. terborchii Luer.....Plate 343.
M. tinekeae Luer & Vásquez .....Plate 344.
M. trautmanniana Luer & Portilla.....Plate 345.
M. trigonopetala Kraenzl. .....Plate 346.
M. trionyx Kraenzl. = **M. falcago**
M. truncata Luer .....Plate 347.
M. tubulosa Lindl. .....Plates 348, 349, 350, 351.
M. tubulosa Lindl. subsp. *syringodes* (Luer & Andreetta) Luer = **M. tubulosa**
M. uncifera Rchb.f. .....Plate 352.
M. uniflora Ruiz & Pav. .....Plate 353.
M. urceolaris Kraenzl. .....Plate 354.
M. ustulata Luer.....Plates 355, 356.
M. vasquezii Luer .....Plate 357.
M. verecunda Luer .....Plate 358.
M. xiphium Rchb.f. ex Kraenzl. = **M. ensata**
M. yungasensis Hashimoto.....Plates 359, 360, 361, 362.
M. yungasensis subsp. *calocodon* (Luer & Vásquez) Luer = **M. yungasensis**
M. zebracea Luer.....Plate 363.

KEY TO THE SPECIES OF SUBSECTION *MASDEVALLIA*

A key to the species of a homogeneous taxon based primarily upon morphological features is difficult to construct and would be even more difficult to interpret because of the gradations of the features. Because this key is based primarily upon colors, species of variable colors will appear in different parts of the key. My apology to those persons living in a color-blind world.

1 Sepals whitish (white, cream, yellowish white or greenish white, without stripes or spots) 2
1' Sepals variously distinctly colored 22

(sepals whitish)

2 Plant repent 3
2' Plant caespitose 4

3 Peduncle shorter than the leaf; sepals with tails about as long as the blades ..... *M. paivaëana*
3' Peduncle longer than the leaf; sepals with tails longer than the blades ..... *M. scandens*

4 Lateral sepals narrowly acute, gradually attenuated into tails 5
4' Lateral sepals obtuse to acute, with a noticeable contraction into tails 12

5 Dorsal sepal connate to the lateral sepals more than 10 mm into a narrow, cylindrical tube 6
5' Dorsal sepal connate to the lateral sepals less than 10 mm 7

6 Lateral sepals with the tails widely spreading ..... *M. tubulosa*
6' Flowers not open, cleistogamous ..... *M. cleistogama*

7 Lateral sepals with the tails longer than the blade 8
7' Lateral sepals with the tails shorter than the blade 10

8 Lateral sepals with a prominent mentum at the base ..... *M.* X*strumella*
8' Lateral sepals without a prominent mentum at the base 9

9 Lateral sepals slender, acuminate ..... *M. pumila*
9' Lateral sepals ovate, acute, contracted into tails ..... *M. leucantha*

10 Petals broad, "triangular," with a retrorse process from a thick, marginal carina ..... *M. trigonopetala*
10' Petals oblong with a small process from a low, marginal carina 11

11 Sepaline tube cylindrical, slightly arcuate ..... *M. syringodes*
11' Sepaline tube narrowly funnel-shaped ..... *M. guayanensis*

12 Lateral sepals acute, tapered into a tail 13
12' Lateral sepals obtuse, more or less abruptly caudate 16

13 Lateral sepals acutely falcate ..... *M. verecunda*
13' Lateral sepals not acutely falcate 14

14 Lip black ..... *M. melanoglossa*
14' Lip not black 15

15 Lateral sepals with tails curved downward, with a conspicuous mentum at the base ..... *M. strumifera*
15' Lateral sepals with tails curved upward, with a small mentum at the base ..... *M. clandestina*

16 Lateral sepals connate to the dorsal sepal more than 3 cm.....*M. datura*
16' Lateral sepals connate to the dorsal sepal less than 2 cm.....17

17 Lateral sepals connate to the dorsal sepal 1-2 cm.....18
17' Lateral sepals connate less than 1 cm.....20

18 Sepals connate about midway into a gaping, campanulate cup.....*M. uniflora*
18' Sepals connate above the middle 19

19 Sepals deeply connate into a subglobose cup.....*M. selenites*
19' Sepals connate into a cylindrical tube.....*M. terborchii*

20 Sepaline tails thick; petals with a minute, uncinate, basal process.....
..... *M. crassicaulis*
20' Sepaline tails slender; petals without a minute, uncinate, basal process.....21

21 Lip fringed at the apex; petals obtusely angled above the base.....*M. hians*
21' Lip entire; petals with a large, retrorse, basal process.....*M. nebulina*

(sepals yellow to green, yellow-orange or orange, sometimes minutely flecked)
Similar species in subsect. *Saltatrices* (not yet treated.)

22 Sepals yellow, yellow-orange, orange or red-orange, without suffusion, stripes or spots 23
22' Sepals colored other than the above 36

23 Plant long-scandent.....*M. assurgens*
23' Plant caespitose 24

24 Sepals with broad tails.....25
24' Sepals with slender tails 26

25 Sepals connate into a short cup with decurving tails.....*M. falcago*
25' Sepals connate into a tube with the tails directed forward.....*M. midas*

26 Sepals connate into an inflated tube 27
26' Sepals not connate into an inflated tube 30

27 Sepaline tube bright red-orange, with short tails more or less connivent.....
..... *M. lucernula*
27' Sepaline tube subspherical without connivent tails.....28

28 Lateral sepals neither arcuate nor concave, forming a broad mentum.....
..... *M. glomerosa*
28' Lateral sepals more or less arcuate and concave.....29

29 Sepals with tails longer than the blades.....*M. cranion*
29' Sepals with tails shorter than the blades.....*M. medinae*

30 Lateral sepals connate deeply into an expanded lamina beyond the tube.....
..... *M. os-viperae*
30' Lateral sepals not deeply connate beyond the tube.....31

31 Lateral sepals attenuate, falcate-sigmoid, recurved.....*M. norops*
31' Lateral sepals not falcate-sigmoid.....32

32 Lateral sepals forming a conical mentum.....*M. deniseana*
32' Lateral sepals not forming a conical mentum.....33

33 Lateral sepals connate to the dorsal sepal less than one third the length..... ..... *M. uncifera*
33' Lateral sepals connate to the dorsal sepal at least half the length.....34

34 Peduncle shorter than the leaf; sepaline tube narrowly cylindrical....*M. leonardoi*
34' Peduncle as long as, or longer than the leaf.....35

35 Sepaline tube campanulate .....*M. truncata*
35' Sepaline tube broadly cylindrical .....*M. dreisei*

(whitish, suffused with yellow, orange, purple, or brown)

36 Lateral sepals white, suffused basally or apically with yellow, orange, brown or purple.....37
36' Dorsal sepal and lateral sepals differently colored.....46

37 Plant shortly repent; sepals white, suffused with purple or orange.*M. paivaëana*
37' Plant caespitose 38

38 Sepals white, suffused with orange basally, with thick tails longer than the blades .....*M. crassicaulis*
38' Sepals not with long, thick tails 39

39 Sepals white, suffused with purple centrally and orange basally, with tails longer than the blades.....40
39' Sepals not colored as above, with tails shorter to about as long as the blades...43

40 Lateral sepals obtuse, abruptly contracted into tails.....41
40' Lateral sepals long-attenuate into tails 42

41 Sepals deeply connate into a cup, with a broad, rounded mentum...*M. patriciana*
41' Sepals expanded beyond the cup .....*M. exquisita*

42 Lateral sepals falcate, recurved.....*M. gilbertoi*
42' Lateral sepals directed forward 44

43 Leaves less than 1 cm wide; peduncle less than 2 cm long.....*M. condorensis*
43' Leaves more than 1 cm wide; peduncle 6-10 cm long.....*M. picta*

44 Sepals connate into a cylindrical tube, suffused with brown basally....*M. elachys*
44' Sepals connate into a broad cup or tube, not suffused with brown basally.....45

45 Lateral sepals connate to dorsal sepal less than 1 cm, suffused with purple basally or centrally.....*M. ionocharis*
45' Lateral sepals connate to dorsal sepal 1.5-2 cm, suffused with purple apically..... ..... *M. uniflora*

(sepals yellow and purple, or orange and purple)

46 Sepals yellow and purple, or orange and purple, with or without darker stripes... 47
46' Sepals not yellow or orange and purple 51

47 Plant long-scandent.....*M. assurgens*
47' Plant caespitose 48

48 Sepals deeply connate into an inflated, suborbicular tube, constricted at the ostium.....*M. encephala*
48' Sepals semiconnate, not constricted at the ostium.....49

49 Sepals with blades more than 3 cm long.....*M. lewisii*
49' Sepals with blades less than 2 cm long 50

50 Petals with a descending, basal process; lip not bicallous.....*M. soennemarkii*
50' Petals with a retrorse, basal callus; lip longitudinally bicarinate
.....*M. trautmanniana*

(sepals tan, brown, or red-brown)

51 Sepals tan, brown, or red-brown.....52
51' Sepals purple 54

52 Sepals tan, diffusely dotted and suffused with dark brown.....*M. juan-albertoi*
52' Sepals redish brown 53

53 Lateral sepals connate deeply into an expanded lamina beyond the tube.....
.....*M. os-viperae*
53 Lateral sepals not deeply connate beyond the tube .....*M. carpishica*

(sepals all purple)

54 Sepals purple, without spots or stripes 55
54' Sepals mottled, spotted, or striped 61

55 Lateral sepals acute.....56
55' Lateral sepals obtuse 59

56 Lateral sepals narrowly acute, long-attenuate, curved upward.....57
56' Lateral sepals acute, with noticeable contraction into tails, curved downward..58

57 Leaves more than 1 cm wide; petals with a low, marginal callus.....*M. roseola*
57' Leaves less than 1 cm wide; petals with an erect, marginal callus.....*M. lilacina*

58 Lateral sepals with tails shorter than the blade; petals with a retrorse tooth.....
.....*M. hymenantha*
58' Lateral sepals with tails longer than the blade; petals without a tooth.....
.....*M. lamprotyria*

59 Sepals prominently cellular-glandular within.....*M. glandulosa*
59' Sepals shortly pubescent within 60

60 Dorsal sepal with the tail clavate, lateral sepals with tails in apposition.....
.....*M. quasimodo*
60' Dorsal sepal with the tail not clavate, lateral sepals with tails spreading.....
.....*M. heideri*

61 Sepals mottled, variously suffused and spotted with purple, the dorsal sepal with a callus at the base of the tail.....*M. hieroglyphica*
61' Sepals not as above 62

(sepals striped)

62 Sepals striped.....63
62' Sepals spotted.....83

63 Sepals white, creamy white or greenish white with purple stripes.....64
63' Sepals not white, creamy white or greenish white with purple stripes.....69

64 Sepals with tails shorter than the blades 65
64' Sepals with tails longer than the blades 66

65 Sepaline tube cylindrical and curved.....*M. lineolata*
65' Sepaline tube bell-shaped, inflated.....*M. rimarima-alba*

66 Lip markedly arcuate .....*M. yungasensis*
66' Lip flat to slightly curved 67

67 Flower large; lip more than 10 mm long.....*M. corderoana*
67' Flower small; lip ca. 6 mm long.....68

68 Sepals creamy white with reddish stripes, connate into a short, cylindrical tube...
.....*M. ensata*
68' Sepals white with dark purple stripes, connate into an infundibular tube.....
.....*M. zebracea*

69 Sepals yellow, yellow-orange, or tan with purple or brown stripes.....70
69' Lateral sepals rose to dark purple with purple stripes.....76

70 Lateral sepals broadly obtuse, abruptly caudate.....*M. yungasensis*
70' Lateral sepals obtuse, subacute, acute to acuminate.....71

71 Sepals connate into a short cup with a prominent, conical mentum.....72
71' Sepals connate into a tube 73

72 Sepals with the apices in apposition.....*M. manoloi*
72' Sepals with the apices not in apposition.....*M. solomonii*

73 Sepals connate into a broadly campanulate tube; lip more than 10 mm long.....74
73' Sepals connate into a narrow tube; lip less than 7 mm long.....75

74 Peduncle arising high on the ramicaul; lateral sepals 3-veined.....*M. corderoana*
74' Peduncle arising low on the ramicaul; lateral sepals 5-veined.....*M. suinii*

75 Sepals falcate, connate into a tube with a secondary mentum.....*M. ustulata*
75' Sepals not falcate, connate into a tube with only a shallow, basal mentum.....
.....*M. helenae*

76 Lateral sepals broadly obtuse, abruptly caudate.....*M. yungasensis*
76' Lateral sepals not broadly obtuse and abruptly caudate.....77

77 Lateral sepals acute, long-acuminate 78
77' Lateral sepals obtuse, subacute, to acute, contracted into tails.....80

78 Lateral sepals rose with purple stripes, with tails about as long as the blade.....
.....*M. odontocera*
78' Lateral sepals dark purple with darker stripes, long-acuminate with tails much longer than the blade 79

79 Dorsal sepal connate to the lateral sepals for most of its length.....*M. mastodon*
79' Dorsal sepal connate to the lateral sepals for about half its length....*M. macropus*

80 Flower very small, the blades of the sepals less than 10 mm long.....*M. vasquezii*
80' Flower not very small, the blades of the sepals more than 11 mm long.....81

81 Lip 12-13 mm long.....*M. elegans*
81' Lip less than 7 mm long 82

82 Sepals with tails subclavate; lip with undulate margin.....*M. hartmanii*
82' Sepals with tails slender; lip narrowly oblong.....*M. nitens*

(sepals spotted)

83 Sepals white and spotted 84
83' Sepals variously colored and spotted 89

84 Lateral sepals white with purple-black, marginal, spots and warts, and with a retrorse mentum ..... *M. popowiana*
84' Sepals not as above 85

85 Sepals connate into a cylindrical tube, lightly spotted with rose, tails of the sepals curved upward ..... *M. clandestina*
85' Sepals connate into a sepaline cup 86

86 Lateral sepals connate to dorsal sepal for more than half the length into a subor-bicular cup with a prominent mentum ..... *M. tinekeae*
86' Lateral sepals connate to dorsal sepal for less than half the length into a gaping cup 87

87 Lip tricallous at the apex ..... *M. dudleyi*
87' Lip with the apex rounded and recurved 88

88 Leaf with the blade 2.5-3.5 cm wide, with the petiole 4-9 cm long ..... *M. laevis (M. petiolaris)*
88' Leaf with the blade 1.5-2 cm wide, with the petiole 2-3 cm long ..... *M. laevis (M. maculigera)*

89 Sepaline tube yellow with brown spot at the base ..... *M. schoonenii*
89' Sepaline tube variously spotted 90

90 Dorsal sepal yellow with purple spots, the lateral sepals rose with purple dots, the apices obtuse with thickened tips ..... *M. ishikoi*
90' Sepals not as above 91

91 Sepals yellow, or orange, variously spotted with purple or brown 92
91' Sepals purple, variously spotted with brown 97

92 Plant and flower small, sepals connate into a tube less than 10 mm long 93
92' Plant and flower large, sepals connate into a gaping cup 94

93 Peduncle horizontal; sepals with tails as long as the blades ..... *M. urceolaris*
93' Peduncle erect; sepals with tails shorter than the blades ..... *M. phacopsis*

94 Lateral sepals falcate, abruptly caudate; lip arcuate, more than 10 mm long ..... *M. chaparensis*
94' Lateral sepals oblique, acuminate; lip not arcuate 95

95 Lateral sepals connate to the dorsal sepal less than one third the length into a shallow cup ..... *M. uncifera*
95' Lateral sepals connate to the dorsal sepal about half the length into a distinct cup 96

96 Lip ca. 9 mm long, concave at the base ..... *M. lepida*
96' Lip ca. 6 mm long, deeply cleft at the base ..... *M. laevis*

97 Lateral sepals falcate, abruptly caudate; lip arcuate, more than 10 mm long ..... *M. chaparensis*
97' Lateral sepals oblique, acuminate; lip not arcuate ..... *M. figueroi*

Masdevallia assurgens Luer & Escobar, Orquideología 13: 153, 1979.

Ety.: From the Latin *assurgens*, "ascending," referring to the habit of the plant.

Plant large, terrestrial to epiphytic, scandent with the rhizomes erect to suberect, 2-6 cm long between ramicauls; roots slender, from nodes along the rhizome. Ramicauls stout, ascending, erect, to suberect, 5-14 cm long, with a loose tubular sheath near the middle and 1-2 sheaths at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, petiolate, 10-17 cm long including the petiole 3-5 cm long, 3-3.8 cm wide, cuneate below into the petiole. **Inflorescence** a single flower, borne by a slender, erect peduncle, 12-24 cm long, with a tubular bract below the middle, from low on the ramicaul; floral bract tubular, 17-25 mm long; pedicel 20-33 mm long; ovary 9 mm long; **sepals** yellow or purple, microscopically pubescent within, the dorsal sepal obovate, carinate below the middle, 20-23 mm long, 17 mm wide, connate to the lateral sepals for 15 mm into a broad, cylindrical tube, the apex obtuse, contracted into an erect, slender tail 5-5.5 cm long, the lateral sepals oblong-subfalcate, oblique, 22-26 mm long, 15 mm wide, connate 5-7 mm to form a deep mentum with the column-foot, the apices acute, oblique, incurved, contracted into slender tails ca. 4 cm long; **petals** white, triangular, 10-11.5 mm long, 5.5-6 mm wide, the apex narrowly obtuse-subapiculate, the labellar margin with a low, longitudinal callus along the oblique margin ending in a short, retrorse process between the middle and basal thirds above a broad claw; **lip** yellow or suffused with purple, oblong, 14-17 mm long, 5.5-7.5 mm wide expanded, the apex obtuse, trilobulate, the base subtruncate, narrowly cleft, hinged beneath; **column** white, suffused with rose, semiterete, 9 mm long, the foot also 9 mm long, with a slender, incurved extension.

COLOMBIA: **Tolima**: between Calarcá and Ibagué, Alto de La Linea, alt. 3400-3600 m, collected 21 Dec. 1977 by E. Valencia, *R. Escobar 830* (Holotype: JAUM; Isotype: SEL), C. Luer illustr. 2308. **Cauca**: Páramo de las Delicias, alt. 3380 m, 17 Nov. 1982, *C. Luer & R. Escobar 8482* (SEL).

This large, robust species is uncommon at high altitudes in the department of Tolima in the Central Cordillera of Colombia and south into the department of Cauca. It produces long-scandent rhizomes that climb in the loose humus around the bases of shrubby vegetation. A single large flower is borne by a long, erect peduncle. The basic color is yellow, but heavy suffusions of bright purple often occur on the lateral sepals. The sepaline tube is broad with the free portions of the lateral sepals oblong with obliquely falcate apices. The tails are slender. The petals are triangular with the marginal callus ending in a narrow retrorse apex above an unguiculate base. The lip is trilobulate at the apex.

Masdevallia assurgens has been a problem for horticulturists for it resists all attempts at cultivation beyond a year or two. What seem to be ideal greenhouse conditions (cool, moist, well-ventilated) have failed to provide exactly the necessary combinations for its survival.

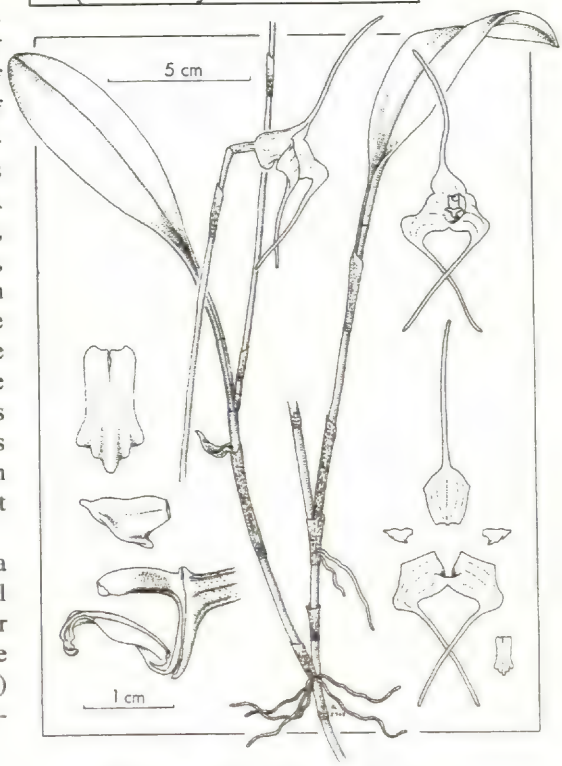


Plate 262. Masdevallia assurgens

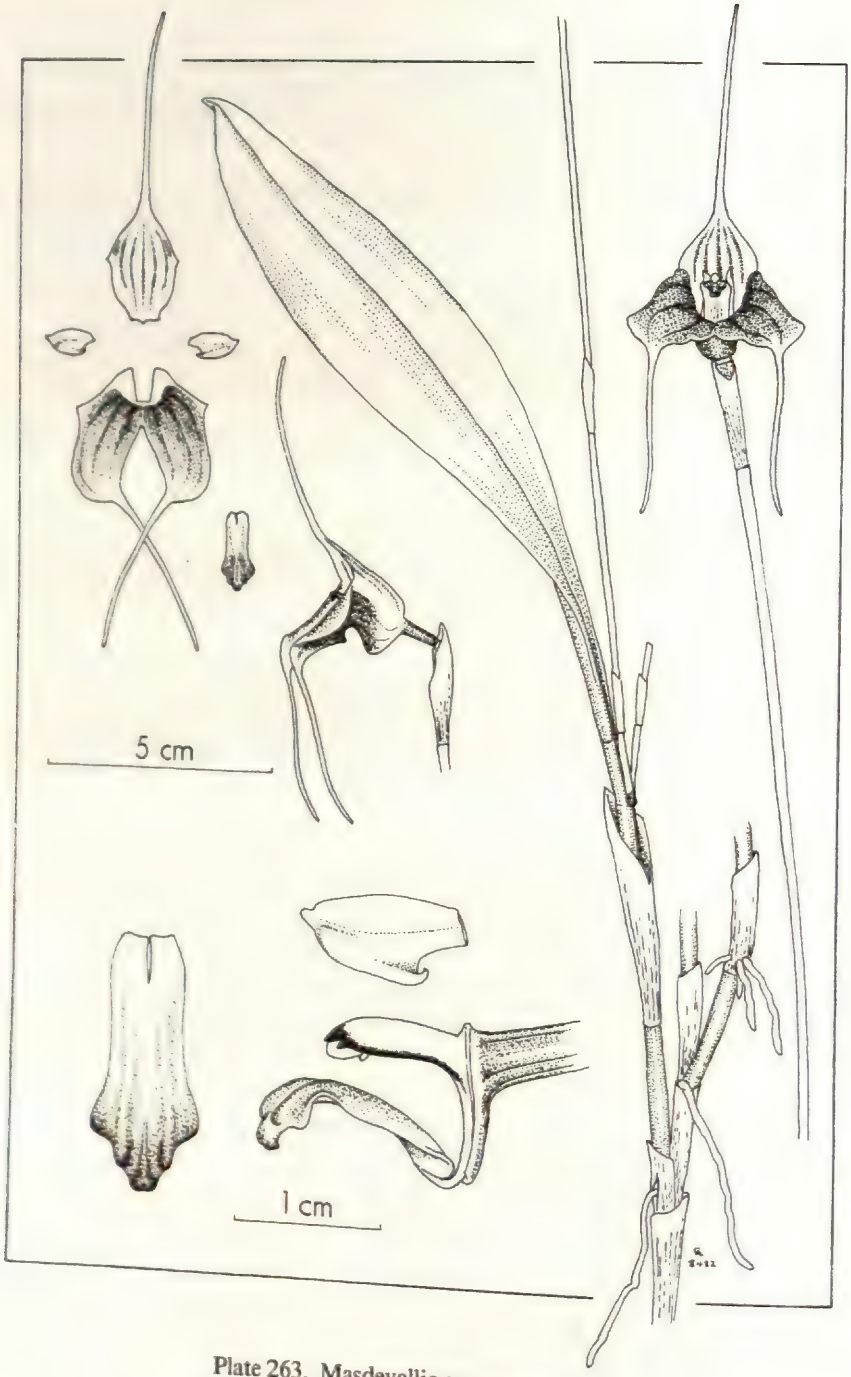


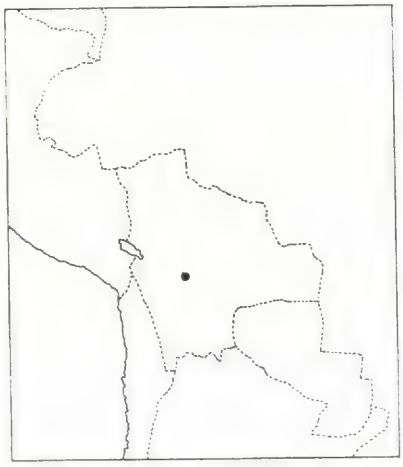
Plate 263. Masdevallia assurgens

Masdevallia burianii Luer & Dalström, Monogr. Syst. Bot. Missouri Bot. Gard. 79: 120, 2000.

Ety.: Named for Rick Burian, of Portland, OR, co-collector of this species.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls black, slender, erect, 2.5-3.5 cm long, enclosed by a loose, tubular sheath and another at the base. **Leaf** erect, coriaceous, long-petiolate, 9-14 cm long including the black petiole 4-5 cm long, the blade elliptical, acute to subacute, 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by a peduncle 9 cm long, with a sheath above the base, from low on the ramicaul; floral bract 12 mm long; pedicel 20 mm long; ovary 5 mm long; **sepals** white, spotted with purple, subcarinate, glabrous externally, shortly pubescent within, the dorsal sepal oblong, concave, 13 mm long, 10 mm wide, 3-veined, the apex obtuse, contracted into a slender tail 4-5 cm long, the lateral sepals oblong-ovate, obtuse, 15 mm long, 9 mm wide, 3-veined, connate ca. 5 mm over a transverse convexity, the apices contracted into slender tails similar to that of the dorsal sepal; **petals** cartilaginous, more or less oblong, obliquely acute at the apex, the labellar margin callous below the middle and ending in a thick, obtuse, incurved process, 8 mm long, 2.5 mm wide, 1-veined; **lip** oblong, arcuate below the middle, 7.5 mm long, 4 mm wide, the apex broadly truncate, the disc with a pair of longitudinal calli from base to apex, and a midline callous above the middle, the base cordate, thickened beneath and loosely hinged to the column-foot; **column** stout, 6 mm long, the foot equally long with an incurved extension, the anther and stigma ventral.

BOLIVIA: **Cochabamba**: road to Tablas, alt. 1500 m, Dec. 1999, *S. Dalström, J. Sönnemark & R. Burian 2415* (Holotype: MO; Isotype: SEL); C. Luer illustr. 19280.



Intermixed with numerous plants of *M. yungasensis*, several plants of this closely allied *M. burianii* were found. The leaves are long-petiolate and the flowers are smaller. The pubescence within the flowers varies in length and color, from purple to white. The basal process of the petals is thick, obtuse, retrorse and incurved, while in *M. yungasensis*, the process is triangular and retrorse. The lip of *M. burianii* is recurved from the basal third while the lip of *M. yungasensis* is arcuate.

Masdevallia burianii is also similar to *M. tinekae*, which also occurs nearby, but the mentum with the column-foot is much larger in the latter and the process of the petal is slender and antrorse.

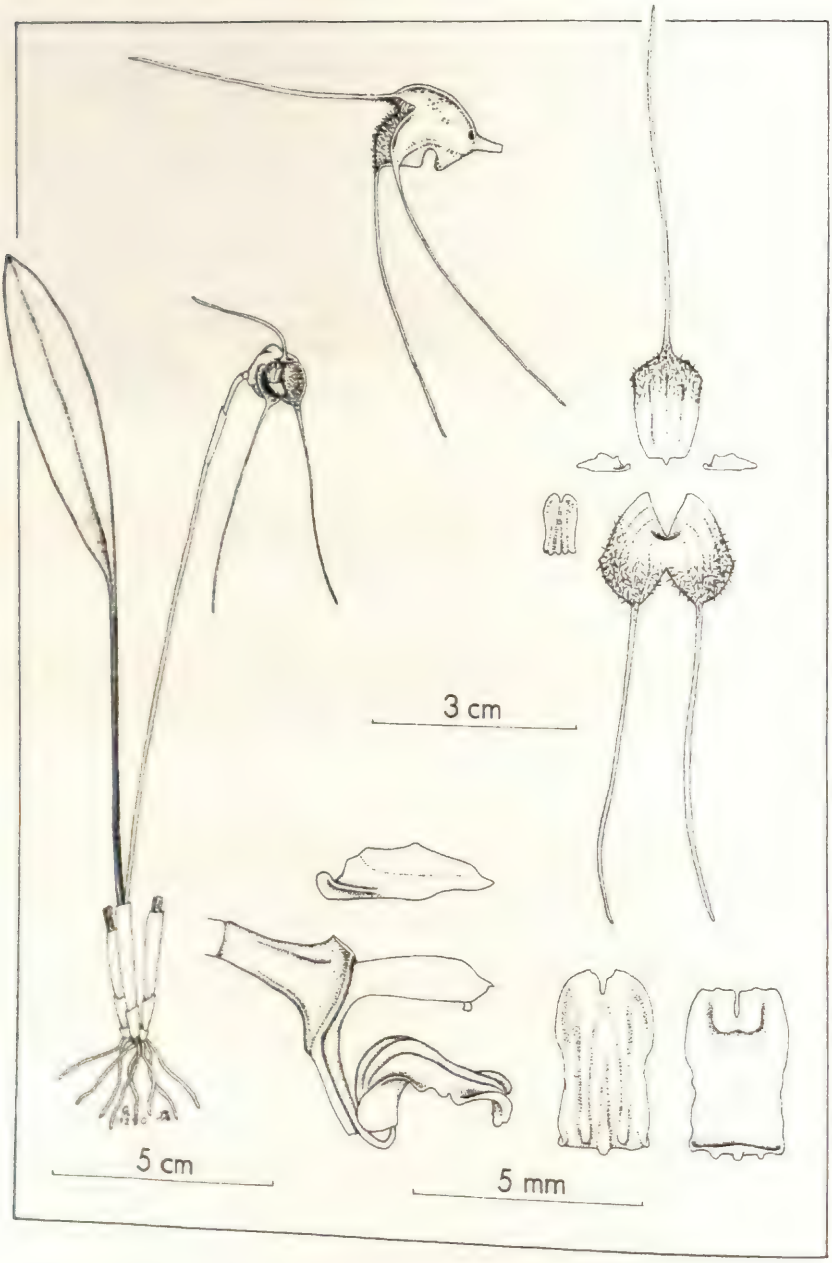


Plate 264. Masdevallia burianii

Masdevallia carpishica Luer & Cloes, Monogr. Syst. Bot. Missouri Bot. Gard. 76: 148, 1999.

Ety.: Named for the Carpish Mountains, Huánuco, Peru, where the species was collected.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 5-8 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 10-17 cm long including the blackish petiole 4-6 cm long, the blade elliptical, acute, 2.5-3.5 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single flower borne by a slender, erect peduncle, 6-10 cm long, from near the middle of the ramicaul; floral bract tubular 10-13 mm long; pedicel 10 mm long; ovary 7-9 mm long; **sepals** fleshy, glabrous, red-brown, the dorsal sepal oblong, 14 mm long, 7 mm wide, obtuse, contracted into a stout, forwardly directed, orange tail 11-14 mm long, connate to the lateral sepals for 11 mm into a slightly arcuate, cylindrical tube, the lateral sepals ovate, oblique, 28-34 mm long, 8 mm wide, connate 8 mm, the apices acute, acuminate into stout, orange tails ca. 1 cm long; **petals** orange, oblong, 8 mm long, 3 mm wide, the apex obtuse-subtruncate, minutely notched, with a longitudinal callus along the labellar margin, terminating at the base in a minute, acute, incurved process; **lip** orange, oblong, 9 mm long, 3 mm wide, the apex obtuse, the disc shallowly concave between a pair of low, longitudinal calli, with a low, midline callus toward the apex, the base truncate, shallowly cleft, hinged beneath; **column** semiterete, 7 mm long, the foot 3 mm long with a short extension.

PERU: **Huánuco**: Carpish Mountains, alt. 2700 m, July 1998, *P. Cloes & M. Cloes 990118* (Holotype: MO), C. Luer illustr. 19057.

This species is apparently endemic in the Carpish Mountains of central Peru. It does not have close relatives, but it seems most similar to Ecuadorian *M. picta*. It is characterized by an elliptical leaf acute at both ends with a black petiole and ramicaul. The peduncle arises from near the middle, well above the base. The single flower is proportionately small. The reddish brown sepals are contracted into stout, orange tails. The petals are oblong with a minute, incurved tooth at the base. The lip is also oblong with and a low, longitudinal pair of calli for nearly the entire length.

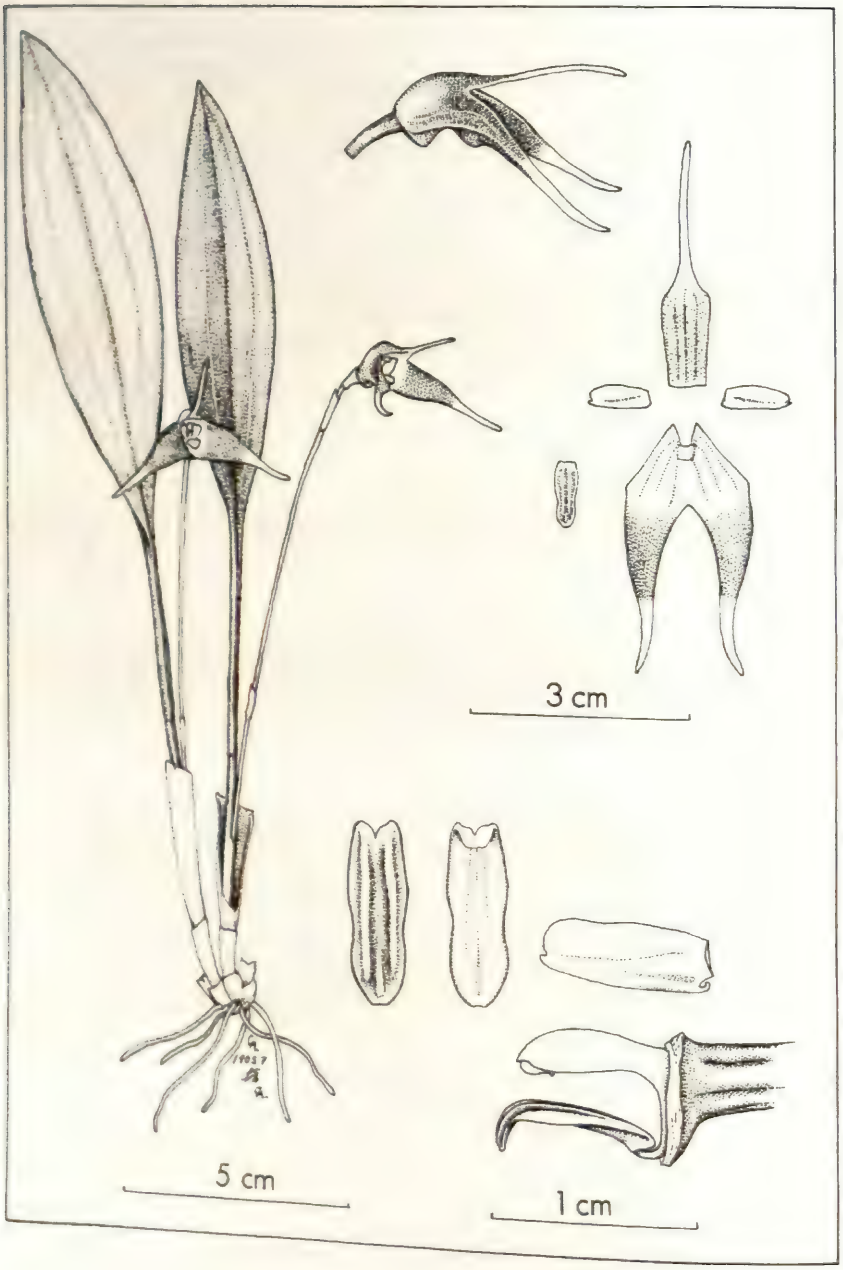


Plate 265. Masdevallia carpishica

Masdevallia chaparensis Hashimoto, Bull. Natl. Sci. Mus., ser. B, 4: 5, Apr. 1978.

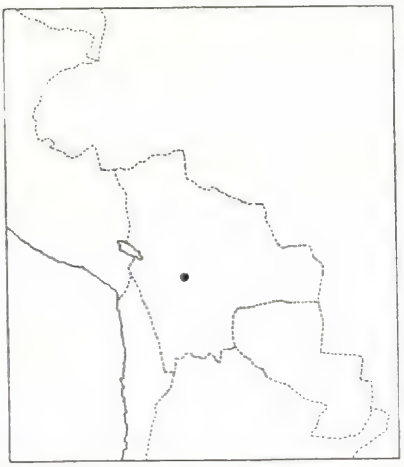
Ety.: Named for the province of Chapare in the department of Cochabamba, Bolivia, where this species is endemic.

Syn.: *Masdevallia hajekii* Luer, Phytologia 39: 205, May 1978.

Ety.: Named in honor of Dr. Carlos Hajek, of Cochabamba, Bolivia, who had been familiar with this species for many years before its description.

Plant medium in size to large, epiphytic, ascending to caespitose; roots slender. Ramicauls erect, slender, 2.5-4.5 cm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, coriaceous, 6-13 cm long including the petiole 2-5 cm long, the blade elliptical, subacute, 1.2-2 cm wide, cuneate below into the channeled petiole. **Inflorescence** a showy, solitary flower, borne by a slender, erect to suberect peduncle, 7-12 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 1.5-2 cm long; pedicel 3-5 mm long; ovary spotted with purple, 5-7 mm long; **sepals** rose, spotted with purple, or yellow, spotted with brown, minutely pubescent within, the dorsal sepal oblong-obovate, 21 mm long, 12 mm wide, connate to the lateral sepals for 15 mm into a broad, gaping, sepaline tube, the free portion broadly triangular, with the apex obtuse, contracted into a suberect, slender, greenish tail 3-4 cm long, the lateral sepals oblong, oblique, 23 mm long, 13 mm wide, connate 12 mm and to the column-foot for 9 mm to form a deep mentum, the apices subacute, contracted into slender, deflexed tails 2.5-3 cm long; **petals** white, spotted with bright purple, oblong, 8.5 mm long, 2-3 mm wide, with the apex obtuse, bluntly subapiculate, the labellar margin with a longitudinal callus ending in an obtuse, retrorse process above the base; **lip** rose, spotted with dark purple, oblong-ovate, recurved, 12 mm long expanded, 5 mm wide, narrowed toward the truncate apex with a protruding, thick, yellow-orange, marginal callus, the disc shallowly sulcate between a parallel pair of longitudinal calli, the base truncate, hinged beneath; **column** white, flecked with purple, semiterete, 7 mm long, the foot equally long, with an incurved extension.

BOLIVIA: **Cochabamba**: Chapare, Pampatambo, 72 Km northeast of Cochabamba, alt. 2440 m, 5 Dec. 1974, *Nashida, Ono, Hashimoto & Ohga 01003* (Holotype: TNS); Valle de Corani, alt. 2300 m, 28 Sept. 1965, *Bro. Adolfo M. 366* (US); between Cochabamba and Pampa Tambo, alt. 2750 m, 6 Feb. 1971, *J.G. Hawkes 4353* (C); between Cochabamba and Villa Tunari, alt. 2700 m, collected by Janet Kuhn, cultivated at J & L Orchids, Easton, CT, 7 Nov. 1977, *C. Luer 2114* (holotype of *M. hajekii*: SEL); same area, alt. 2600 m, 27 Nov. 1978, flowers purple, *C. Luer, J. Luer, R. Vásquez et al. 3473* (MO, SEL), flowers yellow, *C. Luer et al., 3473B* (SEL); same area, alt. 2800 m, 18 Jan. 1988, *C. Luer, J. Luer & R. Vásquez 12872* (MO).



This species is endemic in one humid, forested valley on the north slope of the Andes in central Bolivia. It had been well-known to Dr. Carlos Hajek and other amateur orchidophiles of Cochabamba for many years before the new road through this valley was opened in 1974. Although abundant in a well-botanized area near a metropolis, no collection of this species is known to have been made by the early botanists. It was described independently and nearly simultaneously by two authors in 1978.

Masdevallia chaparensis is distinguished by the large, white, purple-spotted flower. Occasional plants bear yellow flowers with brown markings, or rarely, pure yellow. The tail of the dorsal sepal points forward while the tails of the laterals are deflexed. The petals are spotted with a blunt tooth above the base. The lip is arcuate with an orange callus at the end of the recurved apex.

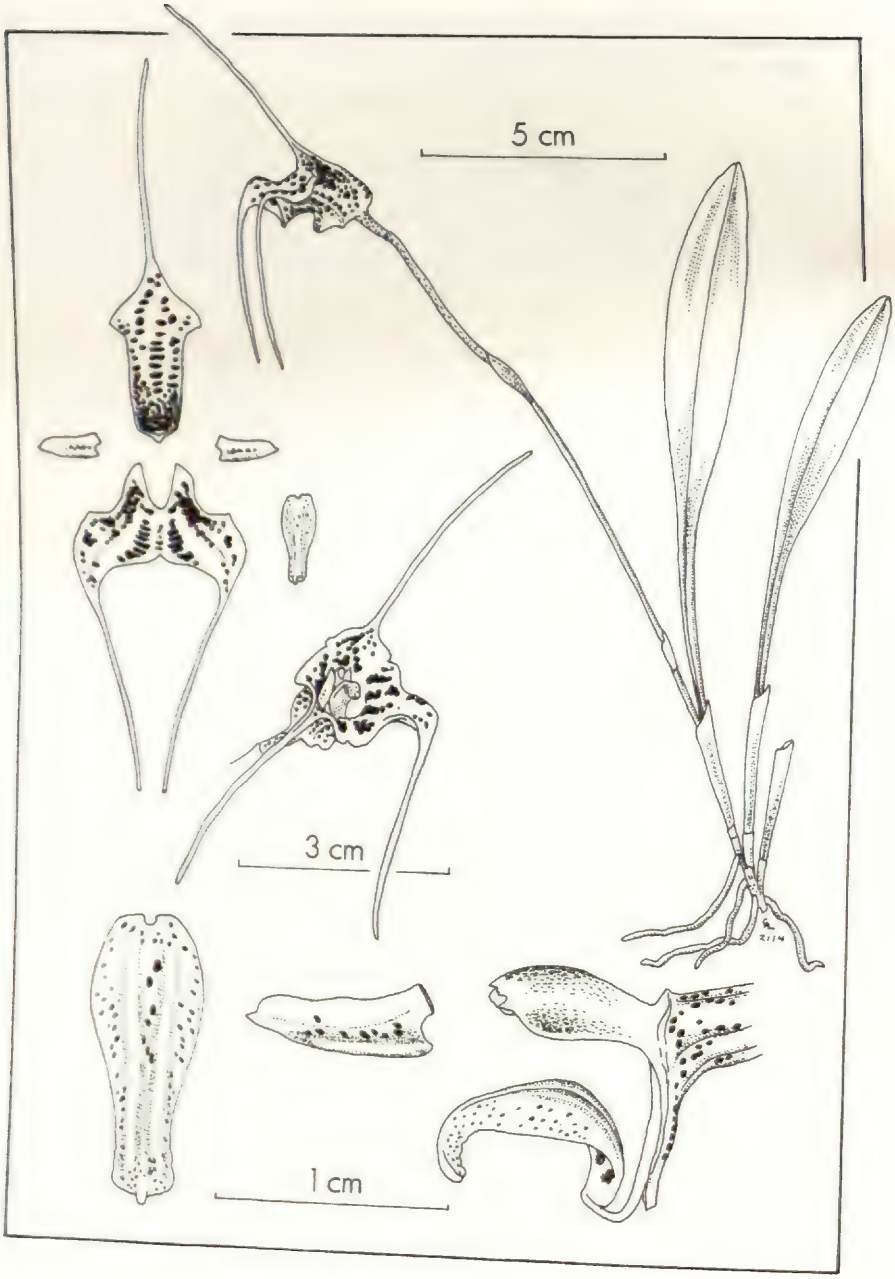


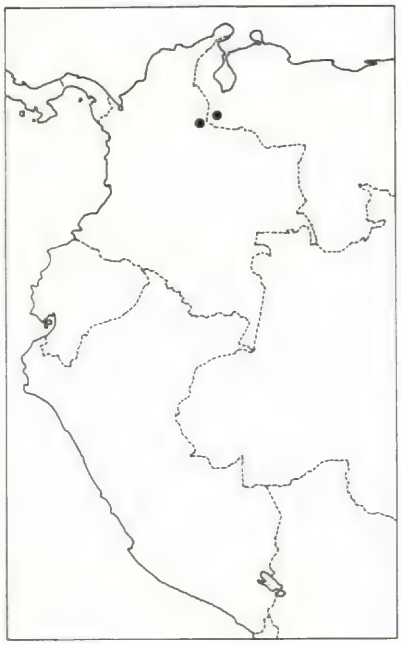
Plate 266. Masdevallia chaparensis

Masdevallia clandestina Luer & Escobar, Selbyana 7: 71, 1982.

Ety.: From the Latin *clandestinus*, "secret, concealed," in allusion to the rarity of the small, inconspicuous plant.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1.5-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thinly coriaceous, long-petiolate, 6-9.5 cm long including the petiole 2-3.5 cm long, the blade narrowly elliptical, acute, 0.9-1.3 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a small, solitary, whitish flower borne by a slender, erect peduncle 5-6.5 cm long, with a tubular bract below the middle, from near the base of the ramicaul; floral bract thin, 8 mm long; pedicel 12 mm long; ovary green, 5 mm long; **sepals** white, light green toward the base, lightly dotted with pale purple, the dorsal sepal narrowly oblong, concave, 12 mm long, 3 mm wide, connate to the lateral sepals for 10 mm to form a curved, cylindrical tube, the free portion triangular, the apex acute, attenuated into a slender, upcurved, white tail 4 cm long, yellow toward the apex, the lateral sepals obovate, oblique, 17 mm long, 7 mm wide, connate 8 mm to form a shallow mentum, shortly pubescent within, the apices acute, contracted into slender, upcurved, white tails 3.5 cm long; **petals** yellow, spotted with purple, oblong, 4 mm long, 1.5 mm wide, the apex obtuse with a blunt apiculum, the labellar margin with a low, longitudinal, subverrucose callus ending in an obtuse process above the base; **lip** light yellow with a few purple spots, oblong, arcuate, 4 mm long, 1.75 mm wide, the apex orange, rounded, the disc with a pair of low, longitudinal calli, the base subcordate, acutely revolute, shallowly cleft, hinged beneath; **column** white, spotted with purple, semiterete, 3.25 mm long, the foot equally long with a slender, incurved extension.

COLOMBIA: **Norte de Santander**: Munic. of Toledo, epiphytic in cloud forest, Alto de Mefué, alt. 2600 m, 25 May 1982, *C. Luer, R. Escobar & D. Portillo 7975* (Holotype: SEL); same locality, collected by E. Valencia, 1988, cultivated at Colombor-quídeas, Dec. 1989, *R. Escobar s.n.* (JAUM, MO). VENEZUELA: **Táchira**: Munic. of Córdoba, El Chorrerón, alt. 2740 m, 26 July 2001, *C. Fernandez 318* (MO, VEN)



This little species is known from the Eastern Cordillera of Colombia and adjacent Venezuela. It was first discovered by Rodrigo Escobar in 1982 in a forest where *M. laevis* was abundant.

Masdevallia clandestina is characterized by the narrow, long-petiolate leaves; a small, white, cylindrical flower lightly spotted with pale purple; long, slender, upcurved tails; and yellow, purple-spotted petals and lip. In common with some other species from cool, high-altitude habitats, this species does not grow well in cultivation, even with the best cool conditions.

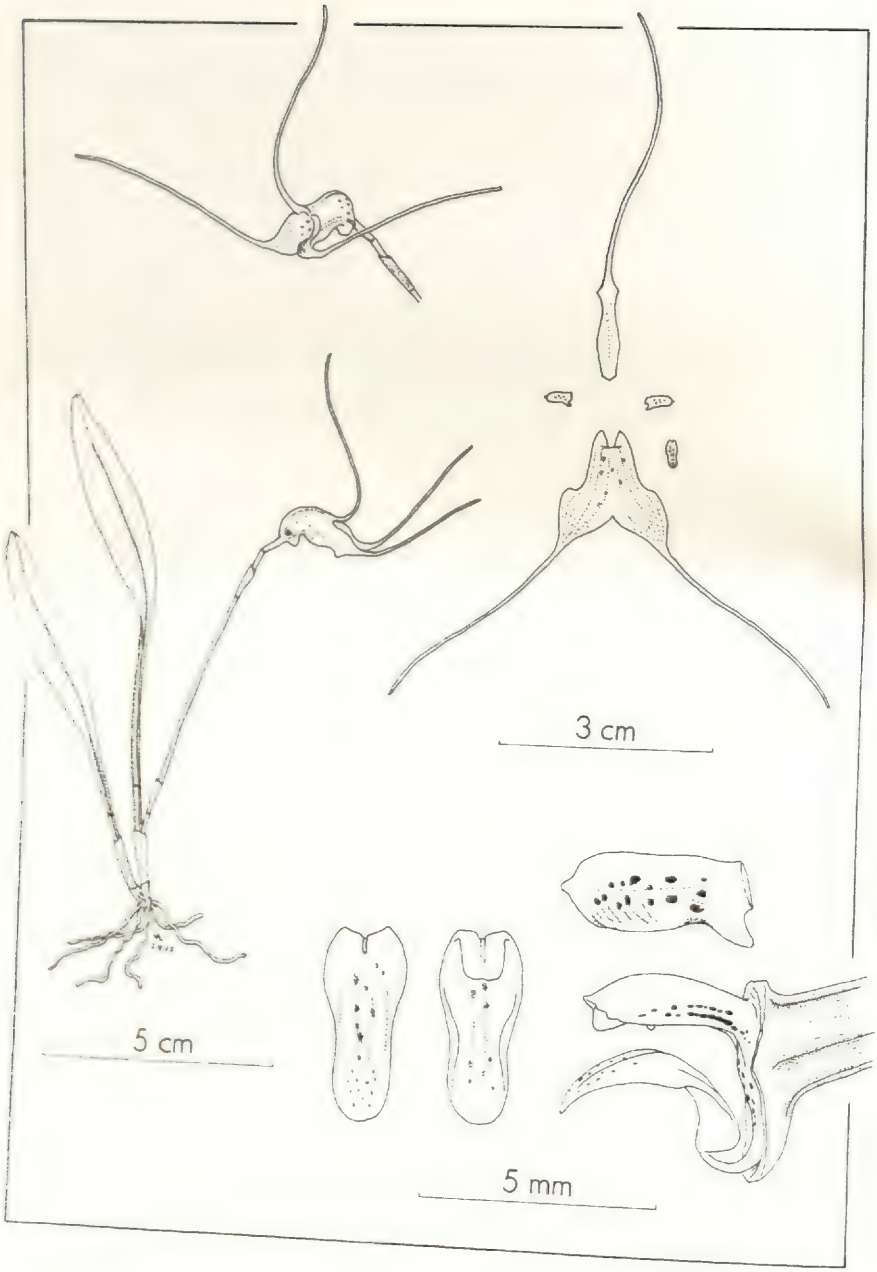


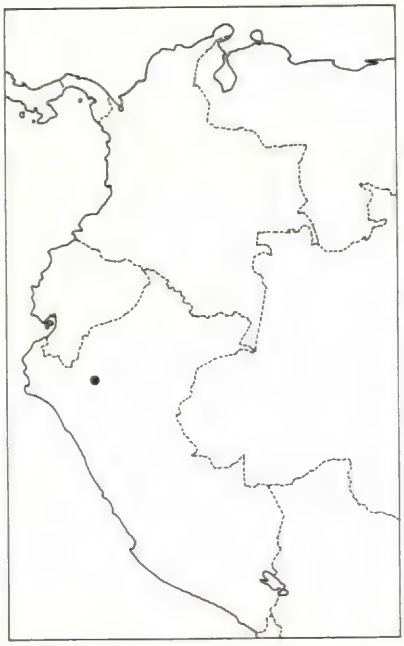
Plate 267. Masdevallia clandestina

Masdevallia cleistogama Luer, Lindleyana 4: 105, 1989.

Ety.: From the Latin *cleistogamus*, "cleistogamous," referring to the unopened flowers that produce capsules.

Plant medium in size, presumably epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 1.5-2.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 8-12 cm long including the petiole 4-5 cm long, the blade narrowly elliptical, subacute to obtuse, 0.8-1 cm wide, gradually narrowed below into the slender, blackened petiole. **Inflorescence** a solitary flower borne erect by a slender, erect peduncle 5-6 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 9-10 mm long; pedicel 12-15 mm long; ovary 8-20 mm long; **sepals** white, glabrous, carinate, connivent, free above the tube but non-spreading, the dorsal sepal oblong, 35 mm long including the tail ca. 20 mm long, 4.5 mm wide, connate to the lateral sepals for 12 mm to form a narrow, cylindrical, sepaline tube, the apex long-acuminate to the slender tail, the lateral sepals narrowly obovate, oblique, 35 mm long including the tails ca. 15 mm long, connate 12 mm, 7 mm wide together expanded, the apices acute, narrowed into slender tails similar to that of the dorsal sepal; **petals** white, narrowly linear-ovate, 12 mm long, 1.5 mm wide, without a callus, the apex thickened, acute, the margins cellular-erose; **lip** white, obovate, 11 mm long, 2.5 mm wide above the middle, the apical portion acute with revolute margins, the disc without a callus, the base truncate, hinged on the end; **column** white, semiterete, 4.5 mm long, the foot 0.5 mm long, the extension rudimentary.

PERU: **Amazonas**(?): Without locality, obtained by the San Francisco Conservatory from Bergstrom, cultivated 7 July 1989, *C. Luer 14396* (Holotype: MO; Isotype: K).



Although "ugly" by the standards of many, this taxon is extremely interesting. It is undoubtedly related to *Masdevallia tubulosa*, but some might argue that it is not even a *Masdevallia*. Vegetatively, *M. cleistogama* is indistinguishable from numerous other medium-sized species of the genus with narrow leaves and slender, blackish petioles, but the cleistogamous flowers immediately distinguish it. To date, it is the only known species of the genus with this exclusive character. Given optimal conditions, the plant flowers continuously, and every flower produces a capsule.

The tubular, white flowers are held upright with the connivent tails pointing skyward. The sepals are free above the narrow, sepaline tube. Within the tube the long, narrow petals are nearly three times as long as the column. The petals are devoid of any callus, but the pointed apex is thickened. The margins are cellular-erose in the middle third. The lip is basically similar to that of *M. tubulosa*, but it is longer and narrower with the margins revolute at the acute apex.

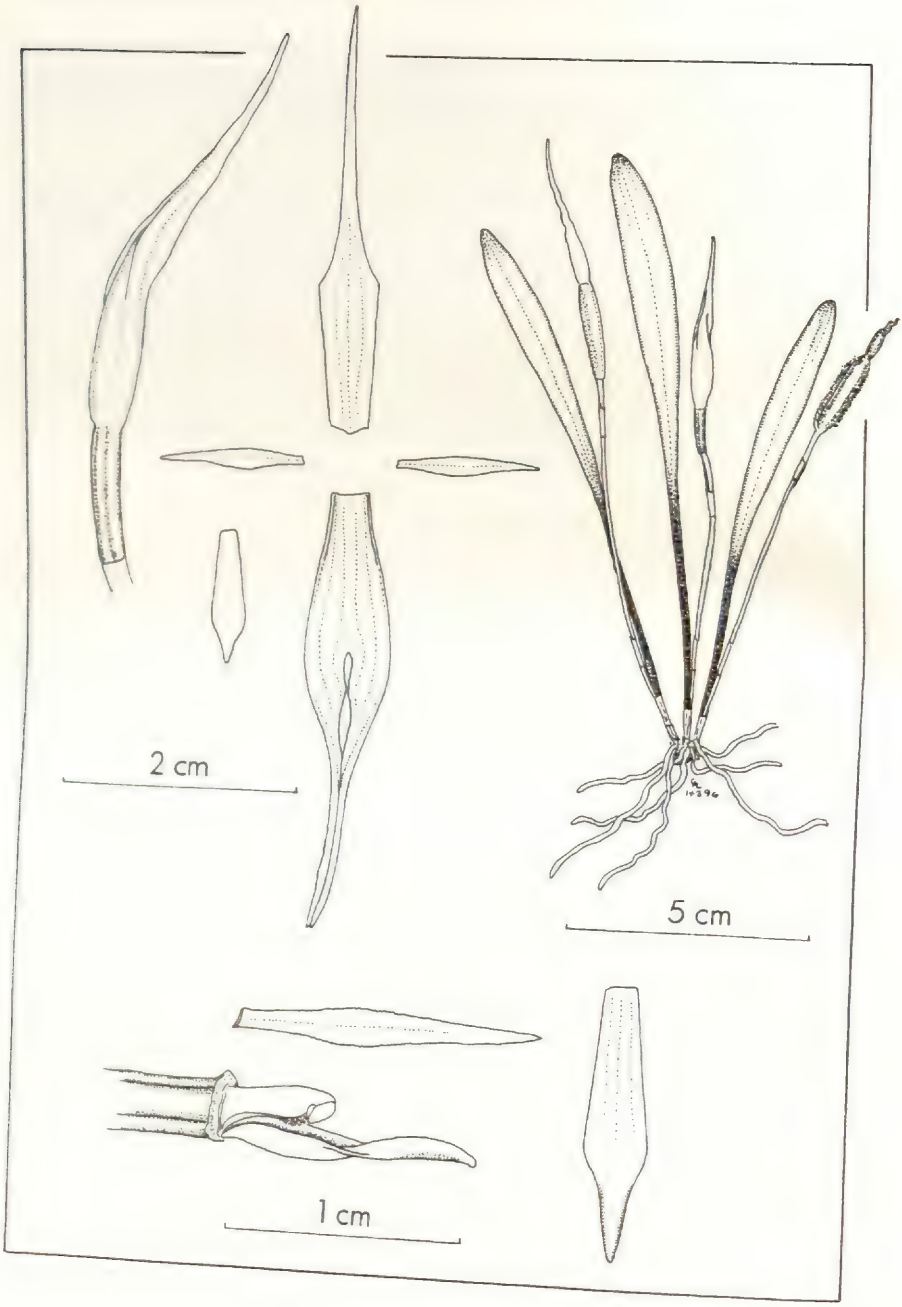


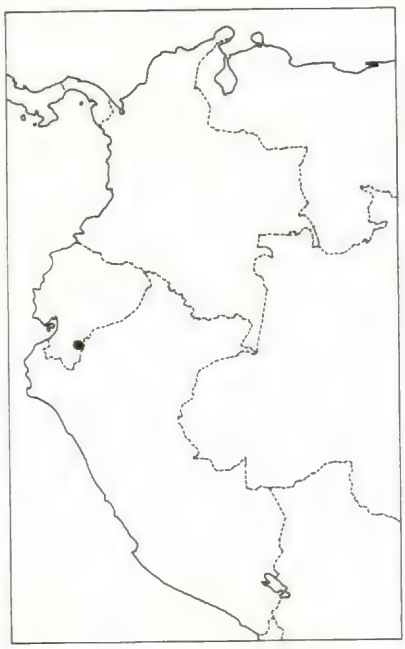
Plate 268. Masdevallia cleistogama

Masdevallia condorensis Luer & Hirtz, Lindleyana 1: 180, 1986.

Ety.: Named for the Cordillera del Condor where the species was discovered.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 7-8 mm long, enclosed by 2-3 closely fitting, tubular sheaths. **Leaf** erect, coriaceous, narrowly linear-obovate, subacute, 30-50 mm long including an indistinct, blackish petiole 5-10 mm long, 4-5 mm wide, gradually narrowed to the base. **Inflorescence** a solitary, long-tailed, colorful flower borne by a slender, suberect peduncle 10-12 mm long, with a bract at the base, from low on the ramicaul; floral bract 5 mm long; pedicel 5 mm long; ovary 4 mm long; **sepals** orange below the middle, white above the middle, suffused with purple centrally, glabrous with the free margins microscopically erose-ciliate near their junction, the dorsal sepal obovate, 10-11 mm long, 6.5 mm wide, connate to the lateral sepals for 7 mm to form a cylindrical tube, the free portion obtuse, contracted into a slender, orange tail ca. 30 mm long, the lateral sepals more or less ovate, the blades ca. 20 mm long, 6 mm wide, connate 6 mm to form a shallow, purple, secondary mentum, the free portions gradually narrowed into slender, light yellow tails, the total length of the lateral sepals ca. 50 mm; **petals** white, oblong, 4.5 mm long, 2.5 mm wide, the apex obtuse, shallowly and irregularly notched, the labellar margin callous, ending in a narrow, incurved process above and extending beyond the base; **lip** white, mottled with red-brown, oblong-ovate, slightly narrowed above the middle, 4.5 mm long, 2.25 mm wide, the apex truncate, with a thick, revolute, purple-brown callus on a marginal lobule, the truncate base hinged beneath; **column** white, semiterete, 3.5 mm long, the foot 2 mm long with the incurved extension.

ECUADOR: **Zamora-Chinchipe**: epiphytic in tall forest east of Paquisha, alt. 1450 m, 19 Feb. 1986, *C. Luer, J. Luer, A. Embree, A. Hirtz & W. Flores 11932* (Holotype: MO).



To date, this colorful, long-tailed species has been found in only one small area of the isolated Cordillera del Condor in southeastern Ecuador. Vegetatively, it is characterized by small, narrow leaves up to five centimeters long. The equally long, slender flower is borne by a short peduncle less than one and a half centimeters long, so that the tails of the sepals extend from below the base of the plant to beyond the tips of the leaves.

The color of the sepals is a combination reminiscent of that of *M. picta*: white with suffusions of orange and purple. The petals are remarkable for their long, incurved basal tooth. The lip is remarkable for a revolute, apical lobule with the marginal callus at the apex.

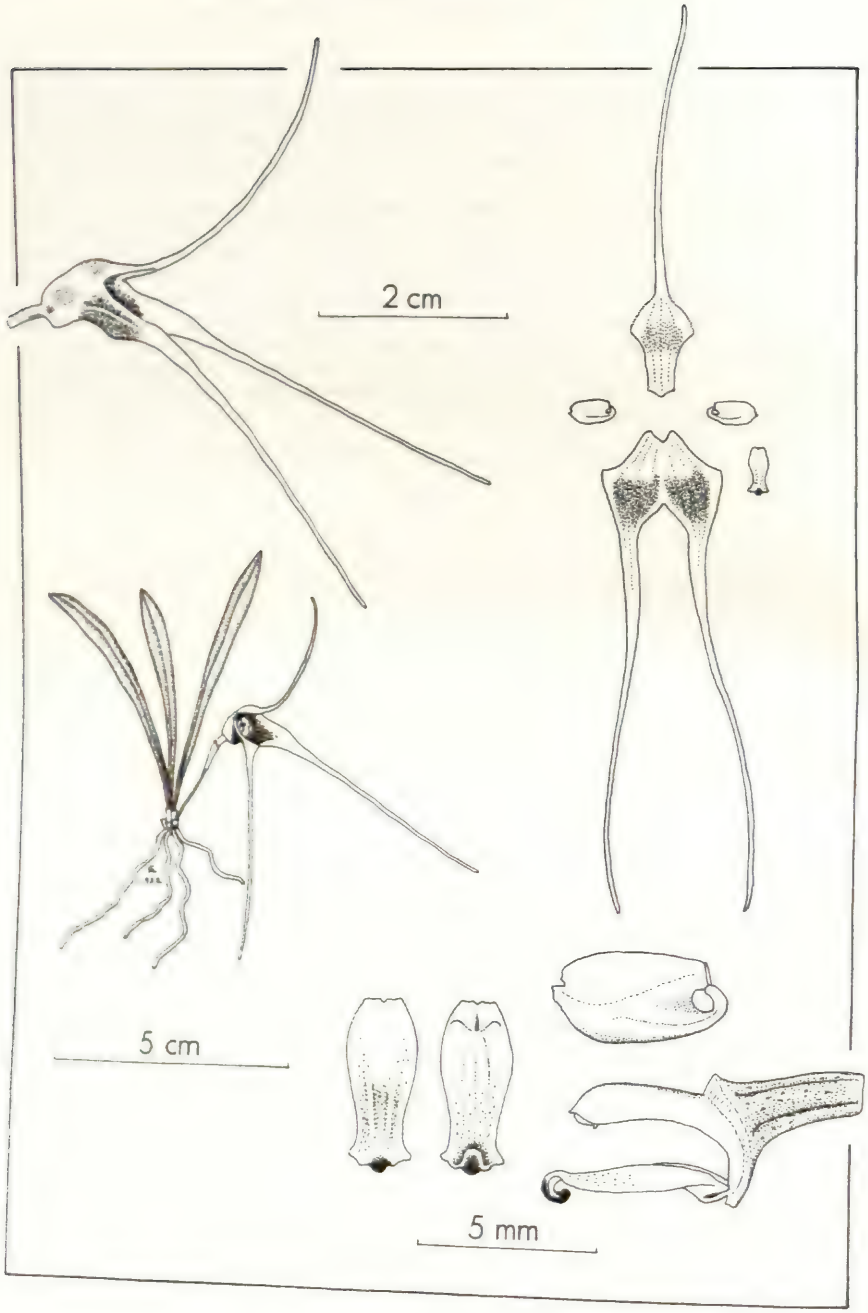
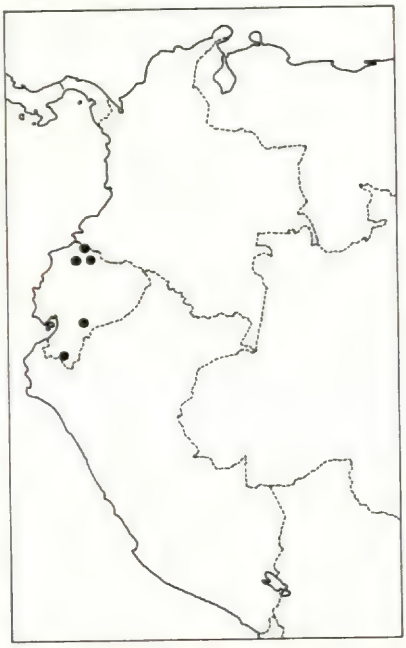


Plate 269. Masdevallia condorensis

Masdevallia corderoana Lehm. & Kraenzl., Bull. Misc. Inform. 103, 1925.

Ety.: Named in honor Luis Cordero, President of Ecuador between 1892 and 1895.

Plant medium to large in size, epiphytic, caespitose; roots coarse. Ramicauls erect, slender, 4-11 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 6-15 cm long including the petiole 2-4 cm long, the blade elliptical, subacute, 1.7-3 cm wide, cuneate below into the slender petiole. **Inflorescence** a solitary, showy flower borne by a slender, erect peduncle 6-12 cm long, with a bract above the base, from a node high on the ramicaul; floral bract tubular, 7-20 mm long; pedicel 10-40 mm long; ovary 5-8 mm long; **sepals** yellow to pale yellow or nearly white, each with 3 prominent, purple veins, microscopically pubescent within, the dorsal sepal obovate, the blade 20-30 mm long, 12 mm wide, connate to the lateral sepals for 10-15 mm to form a broad, sepaline tube, the free portion triangular with the acute apex contracted into a slender tail 18-25 mm long, the lateral sepals ovate, oblique, 22-32 mm long, 11-13 mm wide, connate 5-10 mm, forming a broad mentum with the column-foot, the free portions acute, gradually narrowed into slender tails 12-22 mm long; **petals** white with purple midvein, the carina marked with purple, oblong, 9 mm long, 4 mm wide, the obtuse apex obscurely bilobed, the lower margin with a longitudinal carina ending in an acute retrorse tooth above the base; **lip** dark purple or yellow, marked with purple, oblong, 11 mm long, 5 mm wide, the obtuse apex with a marginal, midline callus, the base subcordate, deeply cleft; **column** white with a purple margin, semiterete, 8-9 mm long, the foot 4 mm long with a long, incurved extension.



ECUADOR: **Morona-Santiago**: Churrucos, "East Andes of Sigsig," alt. 3000-3200 m, Sept.-Oct. 1887, *F.C. Lehmann 6561* (Holotype: K, t. 440; Isotype: AMES); eastern flank of the Andes, alt. 11,000 ft., *W. Jameson 28* (K); without specific locality, west slopes of the Andes, alt. 9,000-10,000 ft., Oct. 1864, *R. Pierce s.n* (BM); Churrucos near Sigsig, collected by B. Malo, alt. ca. 3000 m, cultivated at Tarqui near Cuenca, 14 July 1977, *C. Luer 1699* (SEL); near Moire, alt 3000 m, collected by A. Andreetta, cultivated in Cuenca, 18 Aug. 1978, *C. Luer 3317* (SEL). **Carchi**: epiphytic in forested valley above Maldonado, alt. 3200 m, 21 Feb. 1978, *C. Luer, J. Luer & A. Hirtz 2685* (SEL); same area, alt. 3300 m, 2 Apr. 1984, *C. Luer, S. Dalström & T. Höijer 9887* (MO); west of the pass between Tulcán and Maldonado, alt. 3400 m, 16 Mar. 1991, *C. Luer, J. Luer, J. Del Hierro, A. & X. Hirtz 15072* (MO); at the pass between Tulcán and El Carmelo, alt. 3200 m, 6 Apr. 1985, *C. Luer, J. Luer & A. Hirtz 11126* (MO); between El Playón and Santa Barbara, alt. 3400 m, 20 Mar. 1991. *C. Luer, J. Luer & A. Hirtz 15218* (MO); El Mirador, alt. 3400 m, June 1991. *A. Hirtz 5567* (MO). **Sucumbíos**: Playón de San Francisco, El Mirador, 16 Aug. 1978, *J.D. Boeke & J. Jaramillo 2686* (MO, NY). **Loja**: epiphytic in cloud forest at the pass north of Loja, alt. 3000 m, cultivated by A. Andreetta in Cuenca, 14 Feb. 1979, *C. Luer 2685?* (SEL); same area, collected by A. Andreetta & M. Portilla, cultivated at Paute, 16 May 1988, *C. Luer 13383* (MO). **Zamora-Chinchipe**: epiphytic in cloud forest south of the pass south of Jimbura, alt. 3050 m, 21 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 12000* (MO).

Consul Lehmann's watercolor painting of this species, made in 1887 and without indication of a name, is at Kew. The species was not published until 1925. *Masdevallia corderoana* occurs in scattered localities at altitudes usually over 3000 meters above sea level. Sometimes it is locally abundant. It seems to replace *M. laevis* in Ecuador. In northern Ecuador variatiopns intermediate between *M. laevis* and *M. corderoana* occur. The peduncle of *M. corderoana* emerges from high on the ramicaul. The large, solitary, yellowish flower with three prominent purple stripes on each sepal is characteristic. The sepaline cup is deeper than that of *M. laevis*, but the petals and lip are similar.

In cultivation, these plants from high altitudes become progressively smaller and produce flowers only about half the size of those produced in the wild.

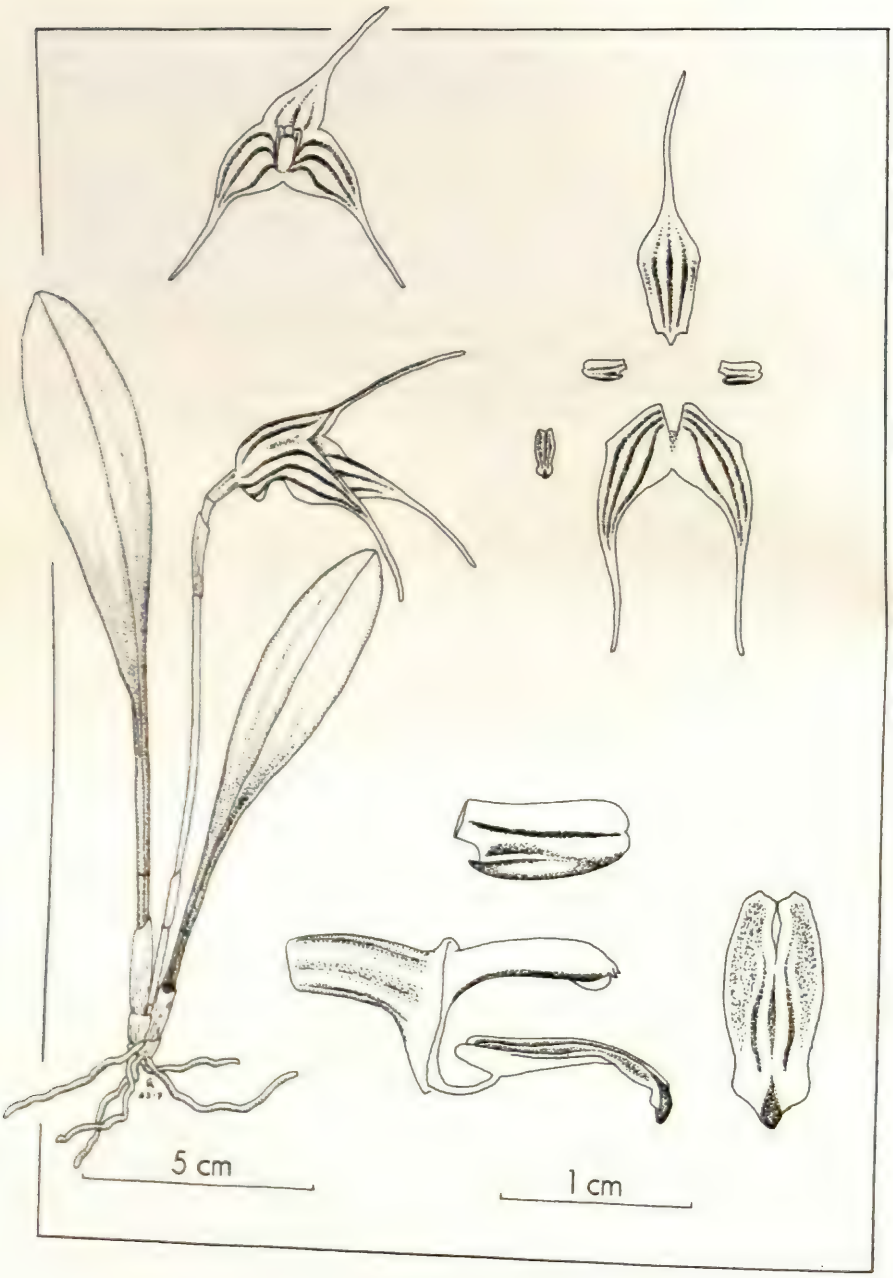


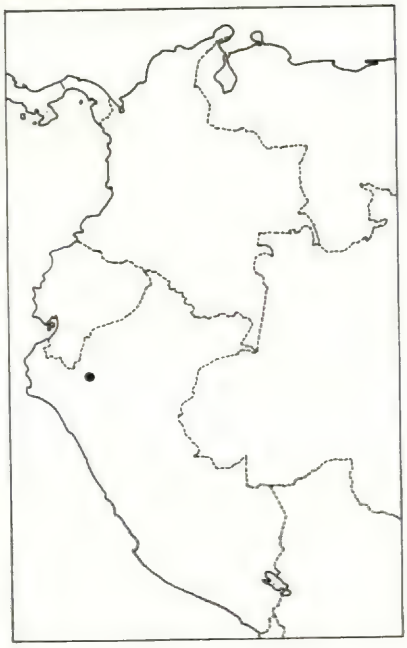
Plate 270. Masdevallia corderoana

Masdevallia cranion Luer, Lindleyana 4: 108, 1989.

Ety.: From the Greek *kranion*, "a skull," referring to the shape of the sepaline cup.

Plant medium in size, presumably epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-1.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 4-7 cm long including the petiole 1-2.5 cm long, the blade elliptical, obtuse, 1.7-2.1 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by a slender, subhorizontal peduncle 4-4.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 8 mm long; pedicel 12 mm long; ovary 4 mm long; **sepals** cellular-papillose within, the dorsal sepal orange, lightly dotted with rose, suboblong, concave-inflated, 18 mm long, 10 mm wide expanded, connate to the lateral sepals for 10 mm to form a semi-orbicular, sepaline cup, the apex rounded, abruptly contracted into a reflexed, slender, yellow-green tail 20 mm long, the lateral sepals rose, suborbicular, oblique, compressed, 15 mm long, connate 8 mm, 15 mm wide together expanded, the apices obtuse, oblique, abruptly contracted into slender, green tails similar to that of the dorsal sepal; **petals** white, cartilaginous, more or less ovate, 6 mm long, 2.5 mm wide, the apex obtuse, irregularly minutely notched, the labellar margin thickened with a longitudinal carina produced into a large, thick, incurved process above the base; **lip** white, ovate, 6 mm long, 3 mm wide, minutely erose above the middle, the apex with a small, brown, midline callus, the disc essentially featureless, the base yellow, rounded, hinged beneath; **column** white, semiterete, with a thin, purple margin, 5 mm long, the foot 2 mm long including a free, incurved extension.

PERU: **Amazonas**: Bongará, Progreso, collected by M. Arias, cultivated by J & L Orchids, Easton, CT, 27 Dec. 1988, *C. Luer 13839* (Holotype: MO); same locality, epiphytic in cloud forest near El Oso, alt. 2000 m, collected by M. Arias A-588, cultivated by W. Königer in Munich, Germany, *W. Königer WK-12* (M, USM, W, Herb. H. Königer); Bongará, Yambrasbamba, alt. 1860-2000 m, 2 Mar. 1967, *S.S. Tillett 673-241* (AMES).



This species was first discovered in Amazonian Peru by S.S. Tillett in 1967, the specimen lying unidentified at AMES. Manuel Arias of Lima made collections more recently. The leaves of *M. cranion* are broadly elliptical, obtuse and petiolate. The peduncle is held more or less horizontally. The sepals are deeply connate into a suborbicular sepaline tube with an orange, arcuate, inflated dorsal sepal. The rose-colored lateral sepals are more or less laterally compressed or convex within without forming a mentum. The petals and lip are hidden deep within the tube.

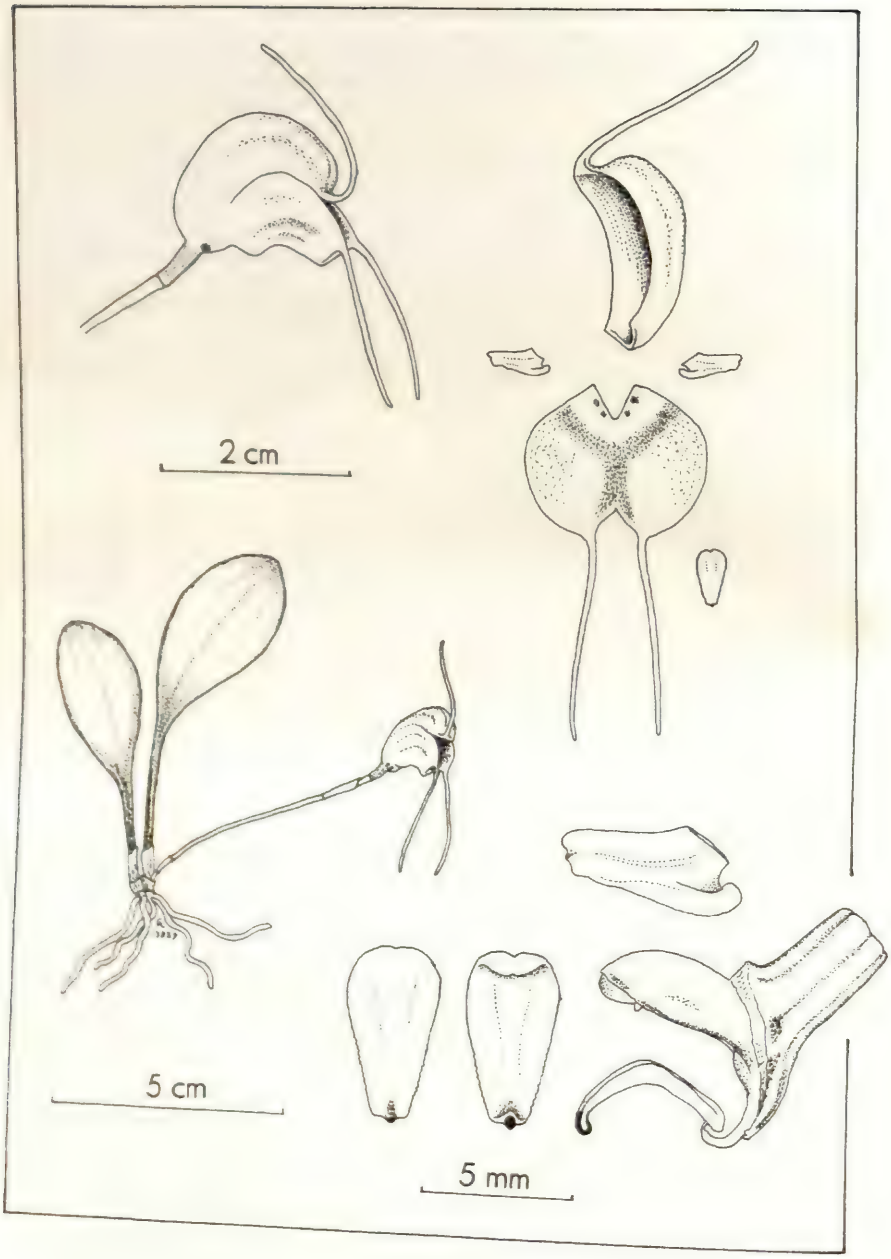


Plate 271. Masdevallia cranion

Masdevallia crassicaulis Luer & J.Portilla, Monogr. Syst. Bot. Missouri Bot. Gard. 76: 148, 1999.

Ety.: From the Latin *crassicaulis*, "thick-tail," referring to the sepaline tails.

Syn.: *Masdevallia blanda* Königer, Arcula 10: 266, 2000.
Ety.: From the Latin *blandus*, "pleasant," referring to the flower.

Plant medium in size for the subsection, epiphytic, caespitose; roots slender; ramicauls slender, erect, 1.5-2 cm long, enclosed by 2-3 loose, black, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 8-9 cm long including the slender petiole ca. 2.5 cm long, the blade narrowly elliptical, acute to subacute, 1.2 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 4-5 cm long, with a bract at the base, from low on the ramicaul; floral bract tubular, 9 mm long; pedicel 9 mm long; ovary 7 mm long; **sepals** white, lightly suffused with pale orange toward the base, with a small, dark spot above the base, glabrous, the dorsal sepal oblong, 12 mm long, 6 mm wide, connate to the lateral sepals for 9 mm to form a cylindrical tube, the apex subacute, contracted into an orange, suberect tail 2.5 cm long, 1 mm thick, the lateral sepals elliptical, connate 8 mm into a bifid lamina 13 mm long, 14 mm wide, the free portions obtuse, contracted into orange tails 2 cm long, 1.5 mm thick; **petals** white, oblong, 4.5 mm long, 1.5 mm wide, the apex broadly subtruncate, the lower margin with a longitudinal callus ending in a very small, uncinate process at the base; **lip** white, oblong-pandurate, 4.5 mm long, 2 mm wide, shallowly constricted between the middle and distal thirds, the apex round, the disc smooth, with very slight elevations along the lateral veins, the base truncate, hinged beneath; **column** white, semiterete, 4 mm long, the foot 3 mm long with a short extension.

ECUADOR: **Morona-Santiago**: Pangui, alt. 900 m, collected 10 May 1997 by J. Portilla, cultivated at Ecuagenera, Gualaceo, Ecuador, Oct. 1999, *J. Portilla 102* (Holotype: MO), C. Luer illustr. 19250; same collection, cultivated in Munich, Germany, by *W. Königer WK-101* (holotype of *M. blanda*: M).

Apparently endemic in southern Ecuador, this small species with narrow, petiolate leaves is similar to many others of the genus. The single flower is borne near the middle of the blade of the leaf. It is distinguished by white sepals lightly suffused with yellow toward the base, and thick, orange, more or less straight tails. The basal tooth of the petals is minute and uncinate. The lip is white and pandurate, briefly narrowed between the lower two thirds and the rounded apical third. The disc is practically smooth, with barely visible elevations along the lateral veins.

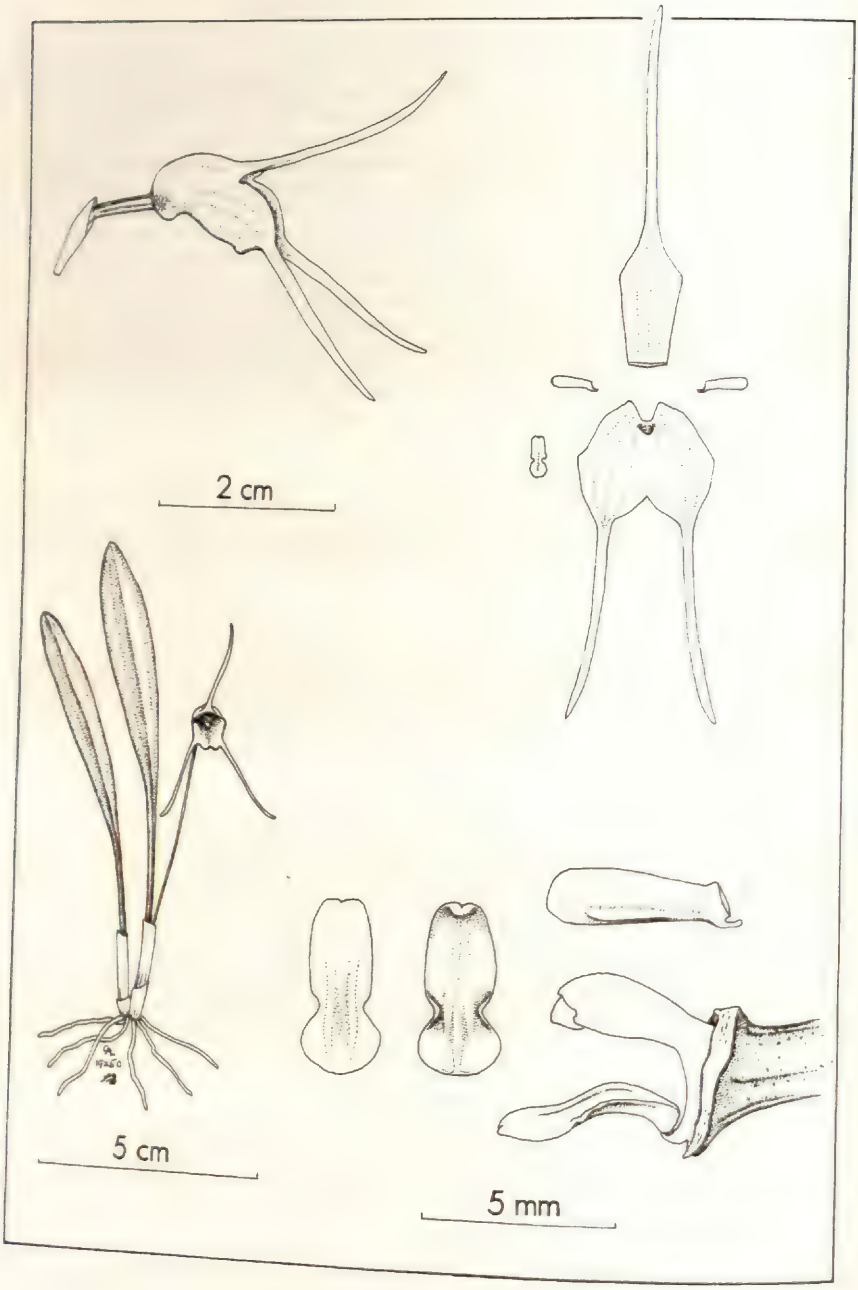


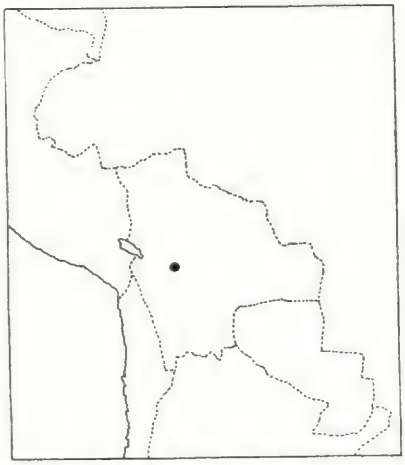
Plate 272. Masdevallia crassicaulis

Masdevallia datura Luer & Vásquez, Phytologia 54: 380, 1983.

Ety: Named for the similarity of the flower to the flower of the genus *Datura* of the nightshade family. *Datura* from the Hindu *dhatura*, "a giant."

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-4.5 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, dark green, narrowly elliptical, long-petiolate, 11-16 cm long including the petiole 3-4 cm long, 1-1.5 cm wide, acute at the apex, the base narrowly cuneate into the petiole. **Inflorescence** a large, solitary flower, borne by a slender, suberect peduncle 6-9 mm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 13 mm long; pedicel 13-15 mm long; ovary 8-9 mm long; **sepals** white, lightly veined in yellow toward the base, with a small, brown spot on either side, membranous, subcarinate, glabrous, the blade of the dorsal sepal narrowly obovate, 37 mm long, 13 mm wide, connate to the lateral sepals for 34 mm to form a long, horizontal, trumpet-shaped, sepaline tube, the apex obtuse, contracted into an erect, slender, yellow tail 5.5-6.5 cm long, the lateral sepals obovate, oblique, 47 long, connate 42 mm, dilated above the tube, 35 mm wide, the obtuse apices contracted into descending, slender tails 4.5-5.5 cm long; **petals** white, narrowly oblong, narrowly unguiculate, 7.75 mm long, 1.5 mm wide, the apex acute, apiculate, minutely erose, with a low, rounded callus externally, the labellar margin with a longitudinal callus ending in a thick, obtuse, retrorse process at the base; **lip** white, ovate, 5.5 mm long, 2.75 mm wide, the apex acute, undulate, the disc sulcate between two low, longitudinal calli above the middle, the base rounded, flattened on the end, hinged on the bottom; **column** white, semiterete, 5 mm long, the foot 4 mm long including the slender, incurved extension.

BOLIVIA: **La Paz**: Inquisivi, epiphytic in cloud forest between Inquisivi and Circuata, alt. 2500 m, collected by C. Luer, J. Luer & R. Vásquez, cultivated by W. Königer in Munich, Germany, Apr. 1982, *C. Luer 8136* (Holotype: SEL; Isotype: MO); same collection, cultivated at Colomborquídeas, 17 Apr. 1988, *C. Luer 13243* (MO); Yungas, alt. 6,000 ft., 1885, *H.H. Rusby 2795* (NY).



This showy species was first collected in the Yungas of Bolivia by Rusby about a century before its formal description. The site of the type-collection is now totally destroyed by the expansion of a small community. *Masdevallia datura* is distinguished by long, narrow leaves and peduncles about half as long. The spectacular flower consists of a large, white, funnel-shaped, sepaline tube with equally long, slender tails. The petals are narrow with a thick, retrorse process beyond the base, and the lip is ovate and acute, all deep within the tube out of sight. The species grows easily in cultivation, and well-grown plants produce numerous flowers simultaneously.

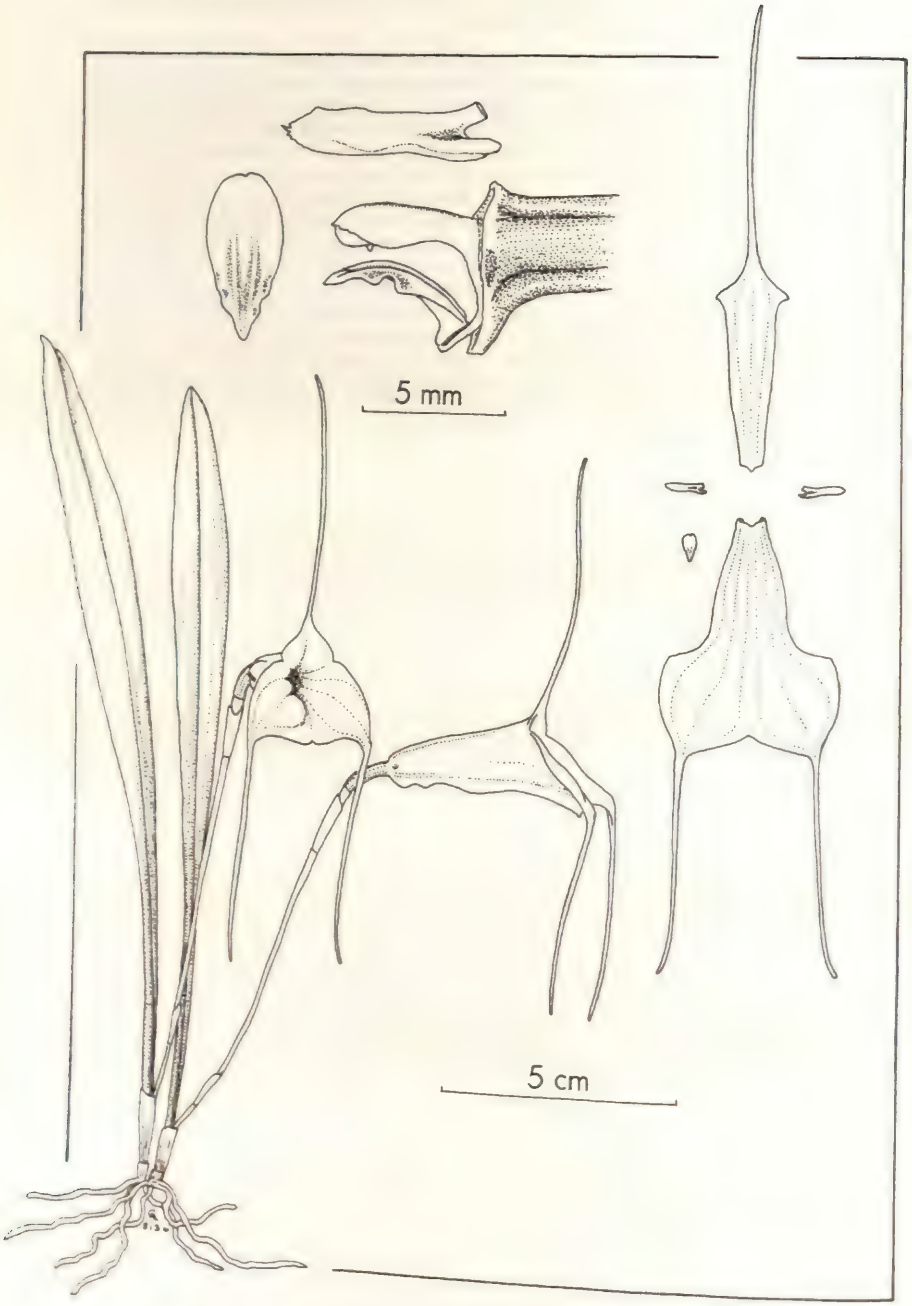


Plate 273. Masdevallia datura

Masdevallia deniseana Luer & J.Portilla, sp. nov.

Ety.: Named for Denise Barrow of Royden Orchids, Great Missenden, Buckinghamshire, England.

Species haec *M. glomerosae* Luer & Andreetta affinis, sed habitu minore, sepalis infra medium connatis, et lateralibus mentum conicum formantibus differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 3.5-4.5 cm long including a petiole 1-1.5 cm long, the blade elliptical, obtuse, 1-1.5 cm wide, cuneate below into the petiole. **Inflorescence** a solitary, orange flower borne by a slender, suberect peduncle 4-5.5 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 8 mm long; pedicel 8 mm long; ovary 5-6 mm long; **sepals** yellow-orange with a dark spot at the base, glabrous, the dorsal sepal obovate, curved, concave, 14 mm long, 8 mm wide expanded, connate to the lateral sepals for 5 mm to form a gaping, tube, the apex rounded, abruptly contracted into a slender, yellow tail 25 mm long, the lateral sepals subquadrate, 10 mm long, 15 mm wide, connate 3.5 mm, 30 mm wide expanded together, forming a prominent, obtusely conical mentum, the free portions subfalcate, obtuse, contracted into slender tails 25 mm long, similar to that of the dorsal sepal; **petals** light yellow, thick, suboblong, 6 mm long, 2 mm wide, the apex subtruncate, bilobed, the labellar margin with a longitudinal callus ending in a thick, retrorse and introrse process above the base; **lip** light yellow with brown at the apex, oblong, 5 mm long, 2.8 mm wide, the apex rounded, recurved, the disc superficially channeled, the base subcordate, hinged beneath; **column** light yellow, semiterete, 5 mm long, the foot 4 mm long, with a slender, incurved extension.

ECUADOR: **Morona-Santiago**: between Paute and Mendez, near Amaluza, alt. 2000 m, collected by Gilberto Merino, cultivated at Ecuagenera in Gualaceo, 5 Mar. 2001, *C. Luer 19669* (Holotype: MO); cultivated Jan. 2001, by Roy Barrow at Royden Orchids, Great Missenden, UK, *C. Luer 19495* (MO).

This species is apparently endemic in southeastern Ecuador. It is one of several small vegetatively similar species with a single, relatively large, yellow or yellow-orange flower, the others being *M. cranion, M. glomerosa* and *M. medinae*.

Masdevallia deniseana is distinguished by long, slender, sepaline tails, a concave dorsal sepal, and a conical mentum formed by the lateral sepals. The petals are longitudinally callous with a thick, retrorse process curving inward at the base. The lip is oblong with thin margins.

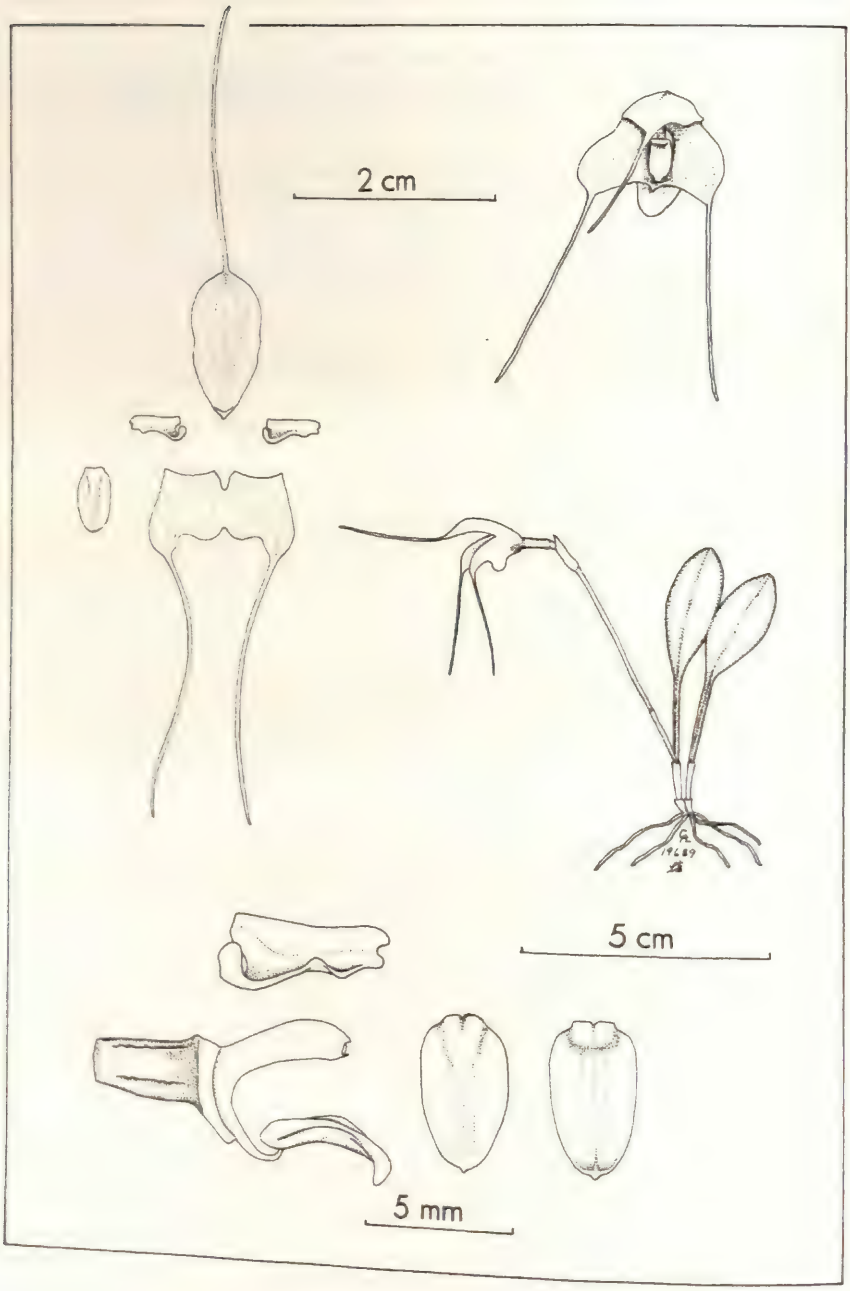


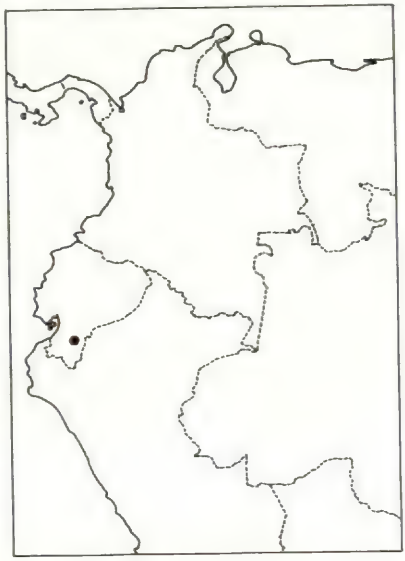
Plate 274. Masdevallia deniseana

Masdevallia dreisei Luer, Rev. Soc. Bol. Bot. 3: 37, 2001.

Ety.: Named in honor Egon Dreise of Calgary, Alberta, Canada, who collected this species.

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls erect, slender, 2-3 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 8-9 cm long including the petiole 3.5 cm long, the blade elliptical, subacute to obtuse, 1.5 cm wide, cuneate below into the slender petiole. **Inflorescence** a solitary, yellow flower borne by a slender, erect peduncle 10 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 10 mm long; pedicel 30 mm long; ovary 5 mm long; **sepals** glabrous externally, microscopically pubescent within, the dorsal sepal obovate, 19 mm long, 14 mm wide, connate to the lateral sepals for 14 mm to form a broad, sepaline tube, the free portion triangular, obtuse, contracted into a slender tail 10 mm long, the lateral sepals ovate, oblique, ca. 22 mm long, 11.5 mm wide, connate 10 mm, forming a broad mentum with the column-foot, the free portions acute, contracted into tails ca. 8 mm long; **petals** oblong, 9 mm long, 4 mm wide, the obtuse apex obscurely bilobed, the lower margin with a longitudinal callus ending in a short, obtuse process above the base; **lip** yellow, ovate, 11.5 mm long, 5.5 mm wide, the apex subacute with a central, midline callus, the base subcordate, deeply cleft; **column** white semiterete, 7.5 mm long, the foot 5 mm long with an incurved extension 3 mm long.

ECUADOR: **Azuay**: south of Cuenca, collected Nov. 1988 by E. Dreise and D. D'Alessandro, cultivated by E. Dreise in Calgary, flowered Jan. 1991, *C. Luer 14928* (Holotype: MO).



This species, apparently endemic in the mountains of southern Ecuador, and known from a single collection by Dreise and D'Alessandro, is related to *M. corderoana*. From the latter, it differs in the broadly cylindrical, yellow, non-striped, sepaline tube with tails much shorter than the blades. The petals are broadly oblong with the marginal callus ending in a very short process above the base. The lip is ovate, broadest in the lower third, with the apex subacute. The base is cleft and hinged beneath, 3 mm from the basal margin.

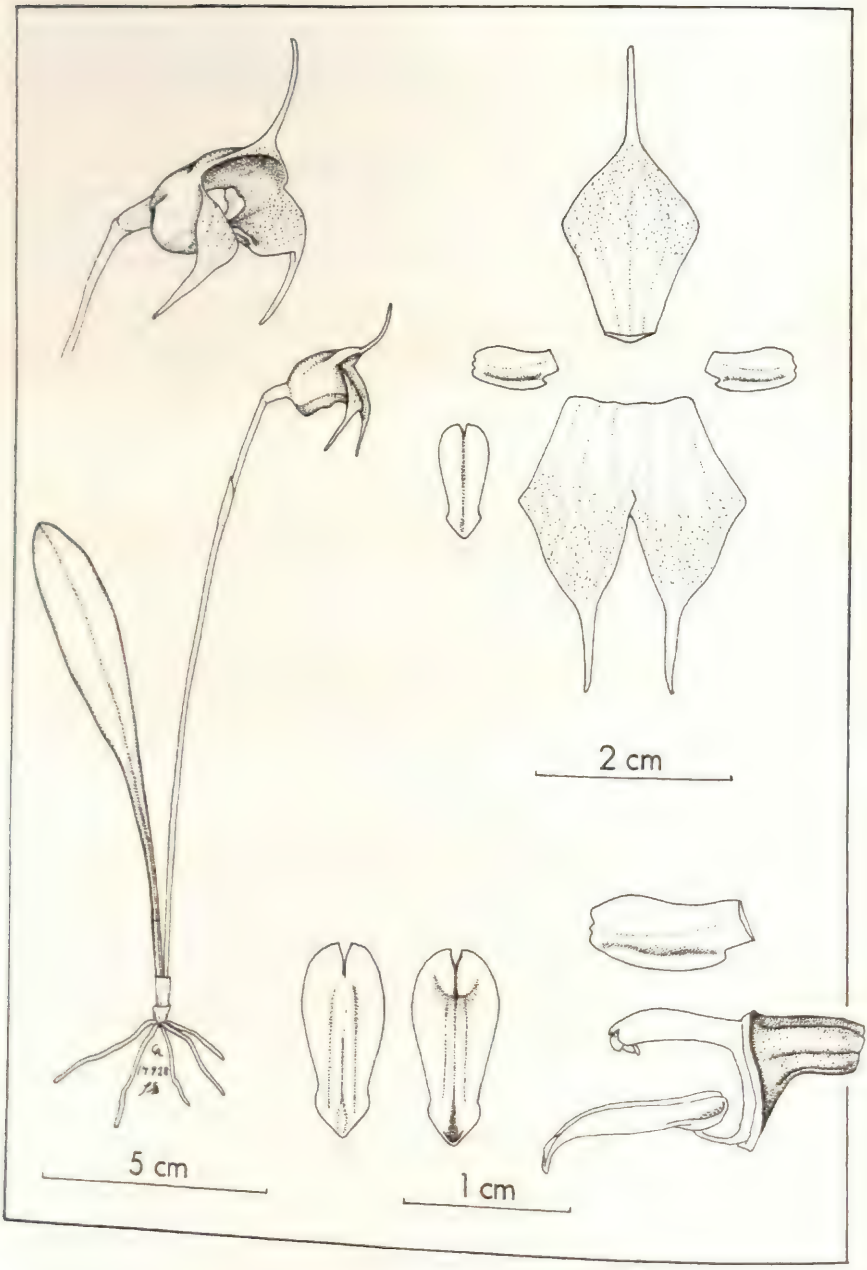


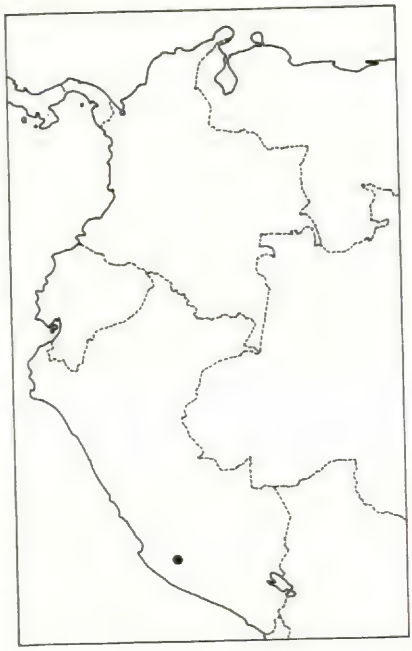
Plate 275. Masdevallia dreisei

Masdevallia dudleyi Luer, Novon 1: 165, 1991.

Ety.: Named in honor of T.R. Dudley who discovered this species.

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls erect, slender, 3-4.5 cm long, enclosed by 2-3 inflated, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 10-17 cm long including the petiole 3-5 cm long, the blade elliptical, acute, 2-2.5 cm wide, cuneate below into the petiole. **Inflorescence** a solitary showy flower, borne by a slender, erect peduncle 9-11 cm long, with a bract above the base, from low on the ramicaul; floral bract oblique, 10-12 mm long; pedicel 15-20 long; ovary 7 mm long; **sepals** white, sparsely dotted with purple, suffused with yellow toward the base, pubescent above the middle, the dorsal sepal obovate, concave, 17 mm long, 10 mm wide, connate to the lateral sepals for 11 mm to form a broad, sepaline cup, the apex obtuse, contracted into a slender tail 29-31 mm long, the lateral sepals ovate, oblique, 17 mm long, 10 mm wide, connate 10 mm to create a broad, shallow, secondary mentum and a shallow mentum with the column-foot, the apices obtuse, contracted into slender tails similar to that of the dorsal sepal; **petals** white, oblong, 8 mm long, 2 mm wide, the apex obtuse, bilobulate, the labellar margin with a narrow callus ending in a retrorse process protruding beyond the base; **lip** oblong, 8 mm long, 3.25 mm wide, the apex broadly rounded, decurved, with three smooth, rounded calli, the disc featureless below the apex, the base subcordate, slightly concave, hinged beneath; **column** semiterete, 7 mm long, the foot 3.5 mm long, including an incurved extension.

PERU: **Ayacucho**: Prov. La Mar, eastern Massif of the Cordillera Central opposing the Cordillera Vilcabamba, epiphytic in hepatic forest, along Inca trail between Huanhuachayo and Punccu, alt. 2920-3400 m, 23 Aug. 1968, *T.R. Dudley 11975* (Holotype: US; Isotype: MO), C. Luer illustr. 12984.



This species is apparently endemic in southeastern Peru where it is probably not rare, but, nevertheless, known only from the original collection by Dudley in 1968. It is similar to *M. laevis* and allied species.

Vegetatively, *M. dudleyi* is not remarkably different: the leaves are elliptical and distinctly petiolate, and the peduncle carries the flower to the middle of large leaves, or beyond small leaves. Mostly white with purple dots, the gaping flowers are shortly pubescent within. The petals are narrowly oblong with a slender marginal carina terminating in a retrorse process that projects beyond the base of the petal. The lip is oblong, shallowly concave at the cordate base, and tricallous at the apex.

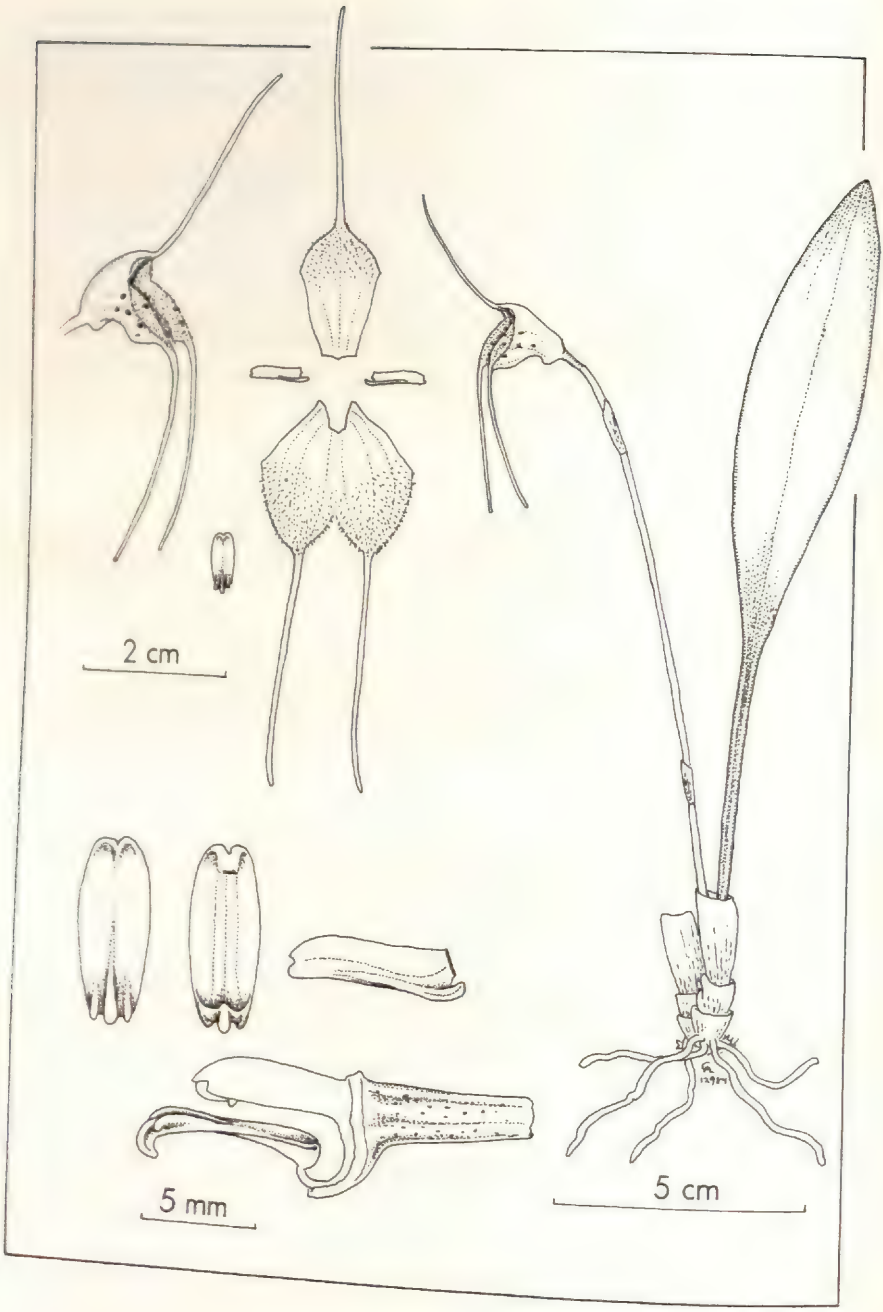


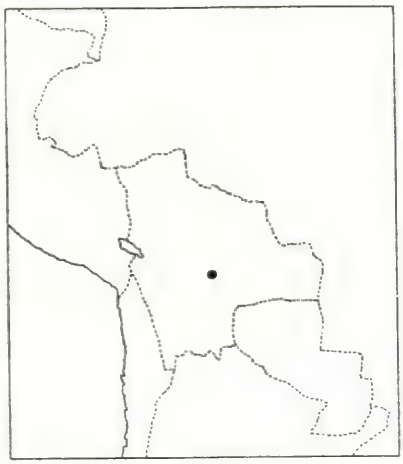
Plate 276. Masdevallia dudleyi

Masdevallia elachys Luer, Selbyana 2: 373, 1978.

Ety.: From the Greek *elachys*, "small, short, or low," in reference to the stature of the plant.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 8-15 mm long, enclosed by 2 thin, loose, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 3-7 cm long including the petiole 1.5-4 cm long, the blade narrowly elliptical-obovate, subacute, 0.7-1.1 cm wide, narrowly cuneate below into the slender petiole. **Inflorescence** a solitary flower borne by an erect, slender peduncle ca. 2 cm long, with a bract near the base, from low on the ramicaul; floral bract thin, tubular, 5-6 mm long; pedicel 5-6 mm long; ovary yellowish white, 3 mm long; **sepals** white, suffused with light brown toward the bases, shortly pubescent within above the middle, with a few red dots below the middle, the dorsal sepal narrowly obovate, 14 mm long, 4.5 mm wide, connate to the lateral sepals for 9 mm into a cylindrical sepaline tube, the free portion triangular, the acute apex contracted into a slender, yellow tail 13 mm long, the lateral sepals connate 8 mm into a bifid, oblong synsepal, with a mentum below the column-foot, the triangular free portions and tails similar to those of the dorsal sepal; **petals** white, oblong, 4 mm long, 1.5 mm wide, the apex truncate, minutely trilobed, with a callus on the labellar margin below the middle produced into a thick, blunt, retrorse tooth; **lip** light yellow, speckled with red-purple, oblong-ligulate, 4.25 mm long, 2 mm wide, the apex obtusely short-acuminate, minutely erose, the disc shallowly sulcate centrally between a low pair of longitudinal calli, the base subcordate, hinged beneath; **column** red, semiterete, 3 mm long, the foot equally long with an incurved extension.

BOLIVIA: **Santa Cruz**: near Siberia, collected out of flower by Helen Kuhn, Aug. 1976, cultivated by J & L Orchids, Easton, CT, 20 Apr. 1978, *C. Luer 2893* (Holotype: SEL); same area, alt. 2500 m, 4 Dec. 1978, *C. Luer, J. Luer, F. Fuchs et al. 3600* (SEL).



This small, not too handsome member of subsection *Masdevallia* was discovered in 1978 at J & L Orchids, Easton, Connecticut, growing among the roots of a cultivated plant of *M. yungasensis* that had been collected in Bolivia by Helen Kuhn in 1976. For two years the stowaway persisted nameless until it was recognized in April 1978. Later the same year, flowering plants were discovered in the original locality, also growing in the proximity of *M. yungasensis* near the tiny community of Siberia in the department of Santa Cruz.

Masdevallia elachys is distinguished by the small, long-petiolate leaves, and a short peduncle bearing a small, whitish, tubular flower slightly suffused with brown, with slender tails spreading from the shortly pubescent interior. The petals have a basal tooth, and the yellow, ligulate lip is marked with red-purple.

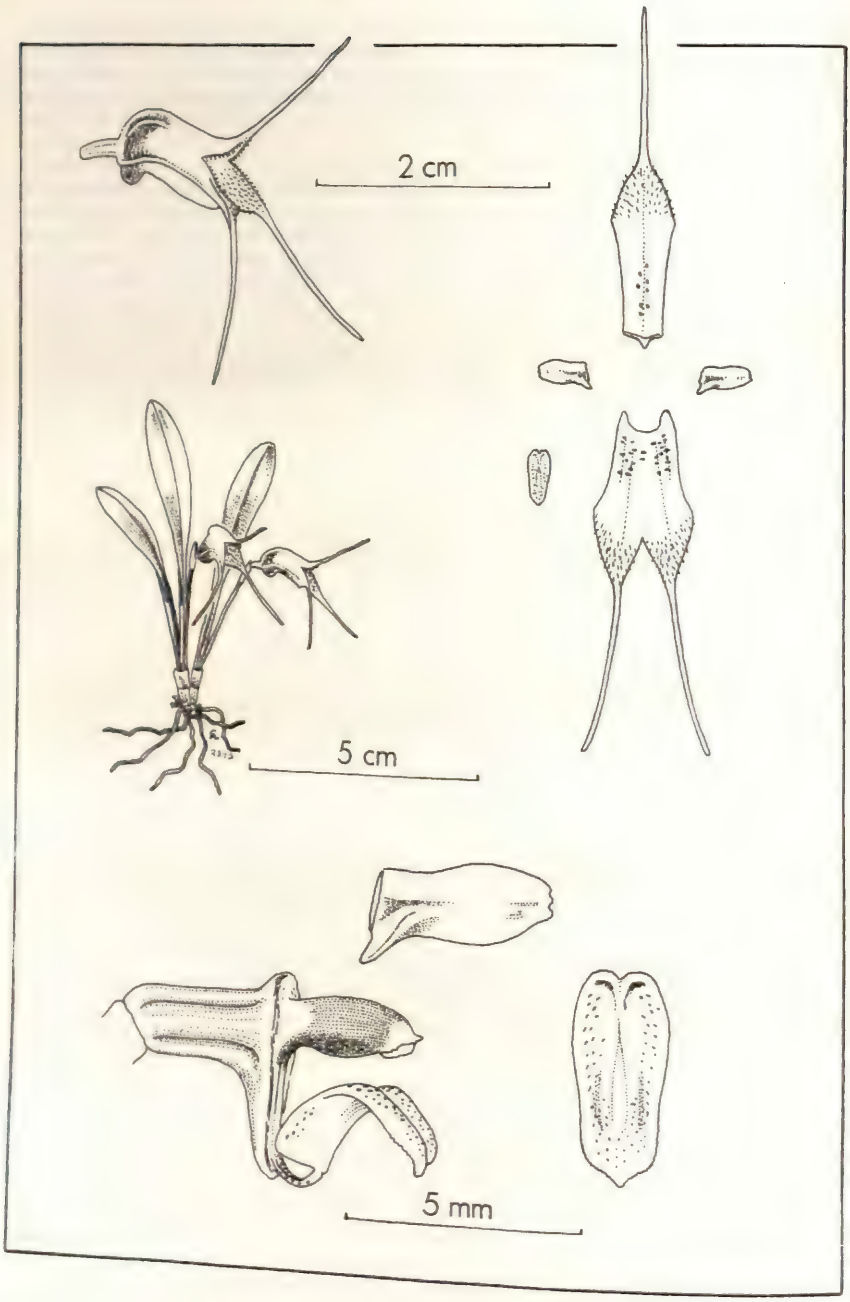


Plate 277. Masdevallia elachys

Masdevallia elegans Luer & Escobar, Selbyana 5: 153, 1979.

Ety.: From the Latin *elegans*, "elegant," referring to the fine qualities of the species.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 2.5-6 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 7-15 cm long including the petiole 2.5-5.5 cm long, the blade elliptical, 1.8-3.8 cm wide, the apex obtuse to rounded, the base cuneate into the petiole. **Inflorescence** a solitary, showy flower borne by an erect, slender peduncle 6-12 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 10-14 mm long; pedicel 10-28 mm long; ovary 6-9 mm long; dorsal sepal white, lightly suffused in rose, more or less veined in purple, glabrous, obovate, 18 mm long, 14 mm wide, connate to the lateral sepals for 11 mm to form a cylindrical, sepaline tube, the free portion triangular with the subacute apex contracted into a slender, forwardly directed, yellowish tail 2-3 cm long; lateral sepals white, generously suffused, dotted or veined with rose, microscopically pubescent within, oblong-elliptical, oblique, 27 mm long, 10 mm wide, connate 9 mm to form a broad mentum with the column-foot, the subacute apices contracted into slender tails 1.5-2.5 cm long; **petals** white, oblong, 9 mm long, 5 mm wide, the apex broadly obtuse, shortly apiculate to retuse, the labellar margin with a longitudinal callus, obtusely angled between the unguiculate lower third and the middle third; **lip** rose with purple dots, oblong, 13 mm long, 6 mm wide, the apex obtuse, lightly reflexed, the base subtruncate, hinged beneath; **column** white with the margins purple, semiterete, 9 mm long, the apex minutely denticulate, the foot 4 mm long, with an incurved extension.

PERU: **Cajamarca**: San Ignacio, exported by R. Stümpfle, cultivated by M. & O. Robledo at La Ceja, Colombia, 21 Oct. 1979, *C. Luer 4083* (Holotype: SEL; Isotype: JAUM); same collection, cultivated by Colomborquídeas, 16 May 1993, *C. Luer 16873* (MO). **Piura**: Huancabamba, alt. 3000 m, Oct. 1984, collected by M. Arias A-366, cultivated in Munich, Germany, by *W. Königer s.n.* (K, M, SEL, USM, Herb. H. Königer); same collection, cultivated 22 Sept. 1985, *C. Luer 11401* (MO).

This pretty species is known from two localities in northern Peru, the two populations varying slightly in floral details. *Masdevallia elegans* is characterized by relatively large, long-petiolate leaves and a large, showy flower borne by a comparatively short peduncle. The dorsal sepal is mostly white while the lateral sepals are diffusely suffused with rose, with the three veins usually darker. As in many species, the purple color varies in intensity from very pale to dark. The white petals are broadly unguiculate, and the large lip is oblong with a dark callus a short distance from the margin.

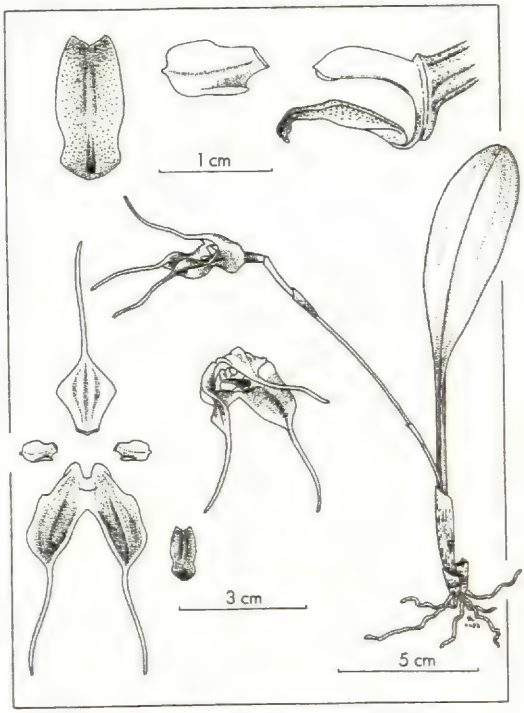


Plate 278. Masdevallia elegans

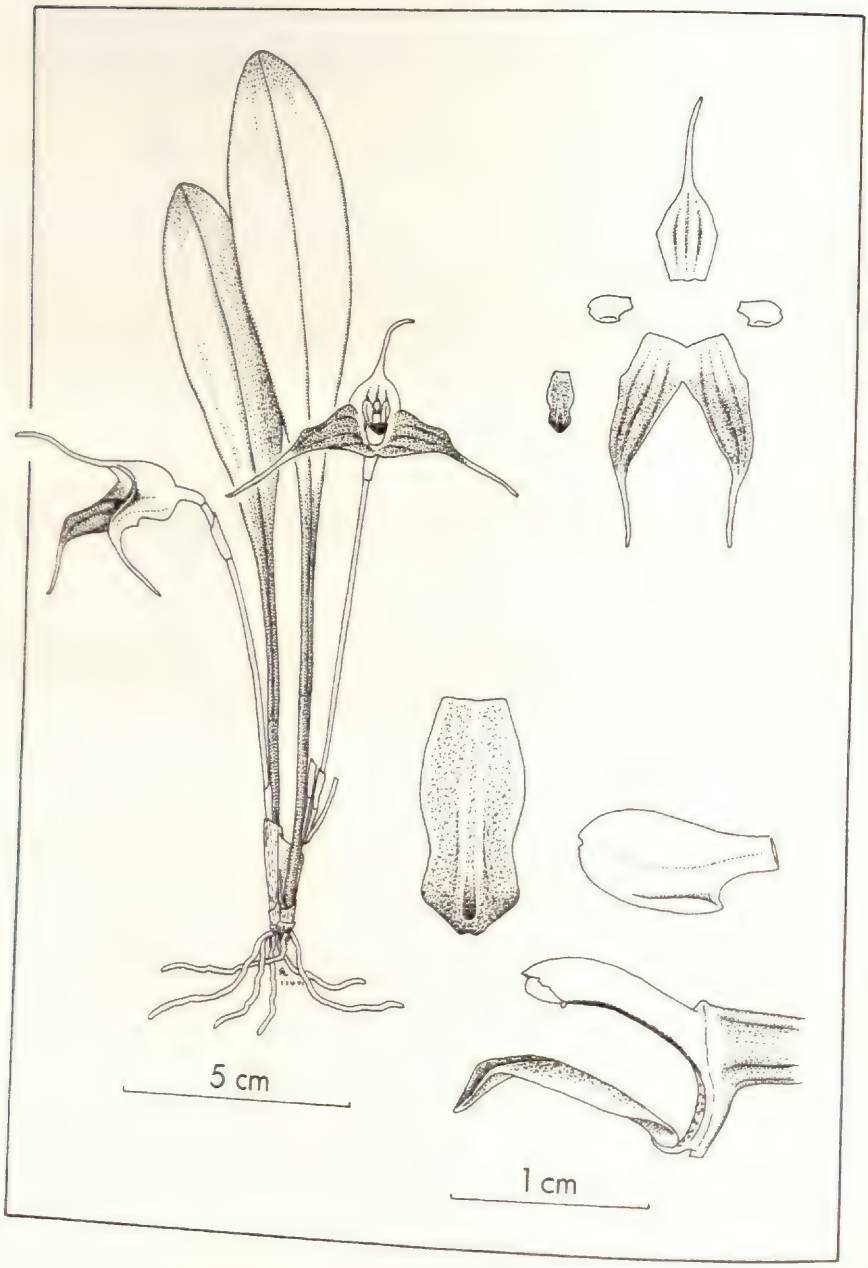


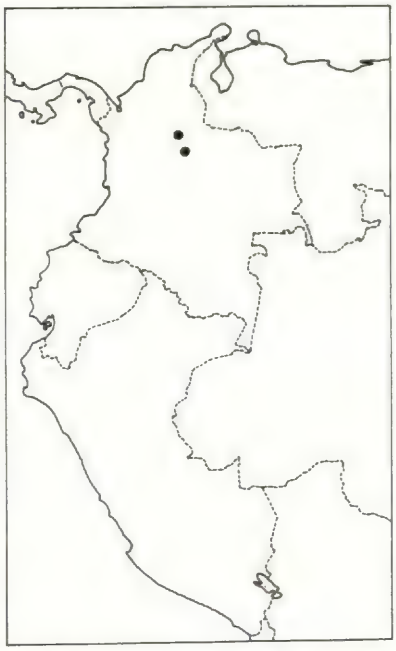
Plate 279. Masdevallia elegans

Masdevallia encephala Luer & Escobar, Orquideología 13: 56, 1978.

Ety.: From the Greek *encephalos*, "the brain," in fancied allusion to the appearance of the flower.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 2-3 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 7-14 cm long including the petiole 1.5-4.5 cm long, the blade elliptical-obovate, subacute to obtuse, 1.3-1.8 cm wide, the base cuneate into the slender, blackish petiole. **Inflorescence** a single flower borne by an erect, slender peduncle 5-8 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 6-9 mm long; pedicel 10-12 mm long; ovary 4-5 mm long; **sepals** connate into a globose flower, the dorsal sepal yellow-green, suffused with rose, oblong, arcuate, concave, 18 mm long, 7 mm wide unexpanded, connate to the lateral sepals for about 9 mm below the middle and loosely adherent above the middle to within a millimeter of the apex, the apex truncate, abruptly contracted into a slender, acutely reflexed, yellow-green tail 20 mm long, the lateral sepals purple, ovoid, inflated, oblique, connate 9 mm into a deeply saccate synsepal, 9 mm long, 11 mm wide unexpanded, with a broad, deep, subacute, posteriorly directed mentum, the apices obtuse, contracted into slender, closely parallel tails similar to that of the dorsal sepal; **petals** greenish white, oblong, 5.5 mm long, 2 mm wide, the apex obtuse, minutely apiculate, the labellar margin with a longitudinal callus ending in a short, blunt tooth at the base; **lip** rose with purple dots, oblong, 4 mm long, 2.5 mm wide, the apex subtruncate with a small, rounded, purplish black callus at the center, the margins microscopically erose, the disc with an indistinct pair of low, longitudinal calli, the base truncate, hinged beneath to the column-foot; **column** white, suffused with purple, semiterete, 4 mm long, the foot thick, 3 mm long, with a slender, incurved extension.

COLOMBIA: **Santander**: Munic. of Charalá, between Virolín and Páramo de la Rusia, alt. 2200-2600 m, 1975, collected by J. Guevara, cultivated by M. & O. Robledo at La Ceja, *R. Escobar 1682* (Holotype: JAUM); same collection, cultivated 12 Oct. 1977, *C. Luer 2005* (SEL); El Taladro near Virolín, alt. 2400 m, collected by E. Valencia Nov. 1986, cultivated at Colomborquídeas, 17 Apr. 1988, *C. Luer 13245* (MO); cloud forest west of Velez toward Landazuri, alt. 2150 m, 4 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10122* (MO). **Boyacá**: between Arcabuco and Moniquirá, Río Pómeca, alt. 2500 m, 26 Apr. 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7568* (SEL).



This species is known fondly as "the brain." The inflated flower was first thought to be a monstrous form of some species related to *M. caudata*, but it is now known to occur abundantly in several localities in the Eastern Cordillera of Colombia.

Vegetatively similar to many other species of the genus, it can be immediately identified by the distinctive flower. The inflated sepals, deeply connate into a suborbicular flower, converge at the apices to form a small, rounded aperture only three to four millimeters wide. It is surrounded by three slender, bristle-like tails. The upper tail reflexes acutely against the bulging "forehead" of the flower, while the other two tails point forward. The petals, lip and column are out of view deep within the flower. The petals have a short, blunt process at the base. The lip is oblong with the apical callus a short distance from the edge as in *M. caudata*.

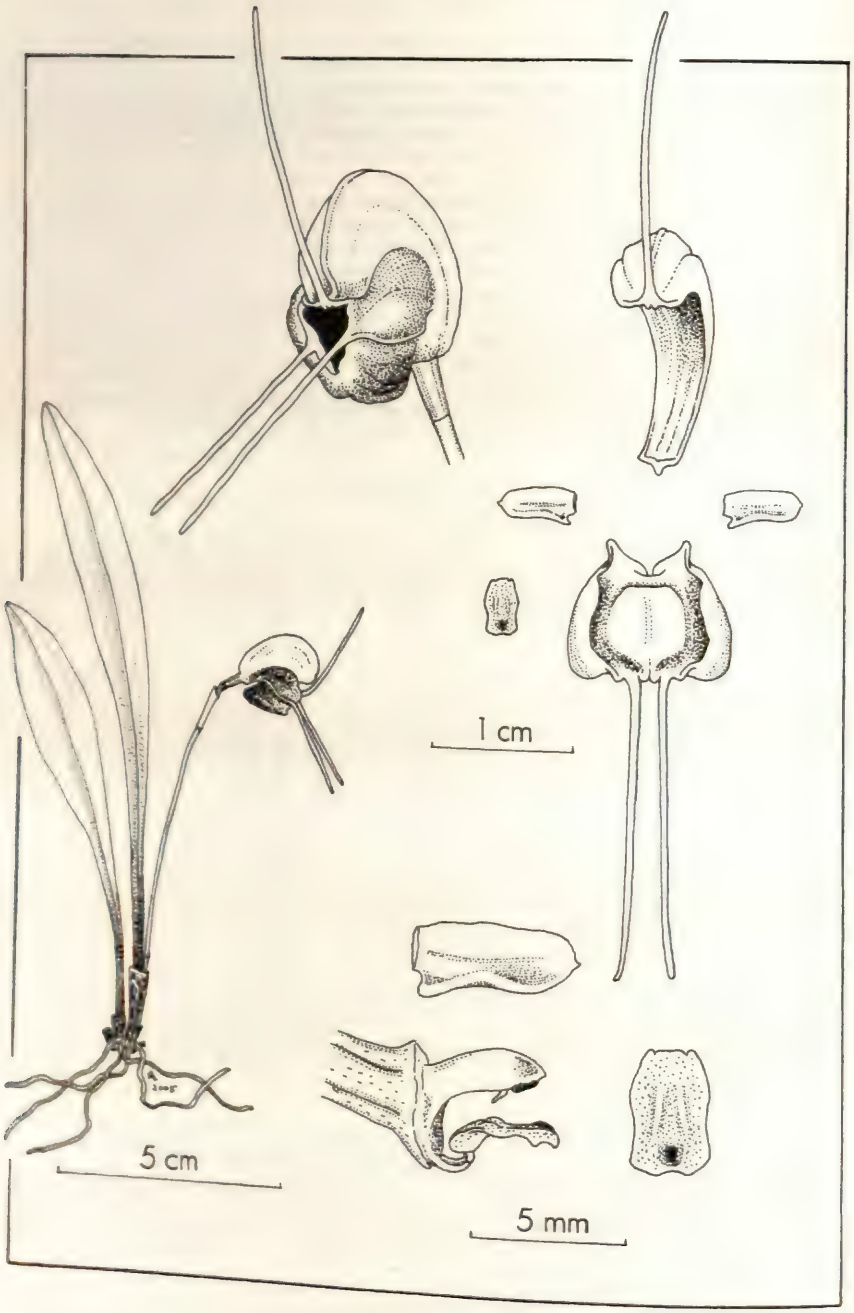


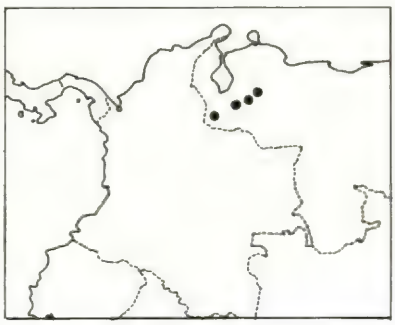
Plate 280. Masdevallia encephala

Masdevallia ensata Rchb.f., Linnaea 22: 818, 1850.

Ety.: From the Latin *ensatus*, "sword-shaped," referring to the shape of the leaves.

Syn.: *Masdevallia xiphium* Rchb.f. ex Kraenzl., Repert. Spec Nov. Regni Veg. Beih. 34: 78, 1925.
Ety.: From the Greek *xiphos*, "a sword," probably referring to the shape of the leaf.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 10-15 cm long including the slender, 3-5 cm long petiole, the blade elliptical, subacute to obtuse, 2 cm wide, cuneate below into the slender petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 7-9 cm long, with a bract near the base, from low on the ramicaul; floral bract 8-9 mm long; pedicel 10-13 mm long; ovary 4 mm long; **sepals** creamy white, each with 3 red veins, glabrous, the dorsal sepal obovate, 26-40 mm long including the blade, 5-9 mm wide, connate to the lateral sepals for 7-10 mm to form a cylindrical tube, the free portion triangular, subacute to obtuse, contracted into a suberect, slender, yellow-green tail 15-25 mm long, the lateral sepals oblong-falcate, 10-18 mm long, connate 7-10 mm into a lamina 8-14 mm wide, the free portions triangular, acute, contracted into slender tails 15-20 mm long; **petals** white, flecked with purple along the center and on the labellar half, oblong, 6.5-7 mm long, 2-3 mm wide, the truncate apex shortly and bluntly apiculate to retuse, the labellar margin with a longitudinal callus ending in a short, retrorse tooth above the unguiculate base; **lip** cream-colored, suffused with red along the 3 veins and at the base, brown at the apex, oblong, 6.5-8 mm long, 3.25-3.5 mm wide, the apex truncate or broadly obtuse, recurved, with a central, marginal callus, the base cordate, deeply retuse or emarginate, hinged beneath; **column** white with purple margins, semiterete, 6-7 mm long, the stout foot 3 mm long with a slender, incurved extension 2 mm long.



VENEZUELA: **Mérida**: La Culata, alt. 7,000-8,000 ft., May-June 1847, *L. Schlim 1543* (Holotype: W; Isotypes: BM, BR, G, K, LD, P), C. Luer illustr. 19266; Mérida, between Jaji and Gonzales valley, alt. 2700 m, 12 Apr. 1949, *J. Renz 5349* (BAS); Canalejos, alt. 2800 m, 30 Apr. 1949, *J. Renz 5239* (BAS); Mérida, Páramo Los Conejos, alt. 2800 m, 27 Mar. 1949, *J. Renz 5212* (BAS); between Santa Cruz de Mora and El Molino, alt. 2800 m, 11 June 1949, *J. Renz 5433* (BAS); Fundación, Rio Quinimari, alt. 2700 m, 16 May 1951, *J. Renz 7018* (BAS); same area above San Isidro, alt. 2400 m, 12 Nov. 1949 *J. Renz 6100* (BAS); La Aguada, between Mérida and Los Nevados, alt. 3200 m, ca. 1950, *J. Renz 5595* (BAS); Mérida, from El Valle toward Cordillera de Norte, alt. 2500 m, 19 July 1951, *J. Renz 7297* (BAS); Sierra del Norte, alt. 2900 m, 6-8 Oct. 1953, *H. Humbert 26757* (P); Mérida, Feb. 1969, *G.C.K. Dunsterville 1107* (SEL), C. Luer illustr. 8162; La Mucuy, alt. 2900 m, *V. Vareschi & F. Pannier 1351* (VEN); El Valle, northeast of Mérida, alt. ca, 2700 m, 8 Apr. 1969, *H. Hertel, B. & F. Oberwinkler 15541* (M); Mérida, Finca Las Nieves, alt. 3000 m, Apr. 1995, *M. Wiegand 3588* (M); Mérida, Valle de San Javier, between road to La Culata and Río Mucujún, alt. 2550 m, 2 Apr. 1997, *J. Schneider 580, 594* (FR); Without collection data, (holotype of *M. xiphium*: K). **Táchira**: Junín near Páramo de Tamá, La Esplanada del Peligro, sur de Betania, alt. 2500 m, Aug. 1980, *F. Delascio & E. Mondolfi 9121* (VEN); Páramo de Tamá, above Betania, alt. 2500-2895 m, 15 July 1944, *J.A. Steyermark 57311* (AMES); Páramo de Tamá, alt. 2750-2950 m, 20 May 1967, *J.A. Steyermark, G.C.K. & E. Dunsterville 98516* (AMES, VEN);

This species occurs in westernmost Venezuela, where it was first collected near Mérida by Louis Schlim. It is most closely related to *M. laevis*, from which it differs in creamy white sepals striped with red or purple instead of yellow or tan and variously spotted with purple or brown. The profile of the flower differs in that the sepaline tube is more cylindrical instead of funnel-shaped or triangular. *Masdevallia ensata* differs from the rusty-brown-flowered *M. ustulata* with a longer sepaline tube with more deeply connate sepals. From both the above, *M. ensata* is further distinguished by the short process at the base of the petals, a deeply incised base of the lip, and a slender, two-millimeter-long extension of the column-foot.

Reichenbach also had a single flower and two buds of a collection of unknown origin. Kränzlin described these scraps as *M. xiphium* for Reichenbach 35 years after his death. A rehydrated flower confirms *M. ensata*. *Masdevallia ustulata* was erroneously identified as *M. ensata* in *Thesaurus Masdevalliarum*-15.

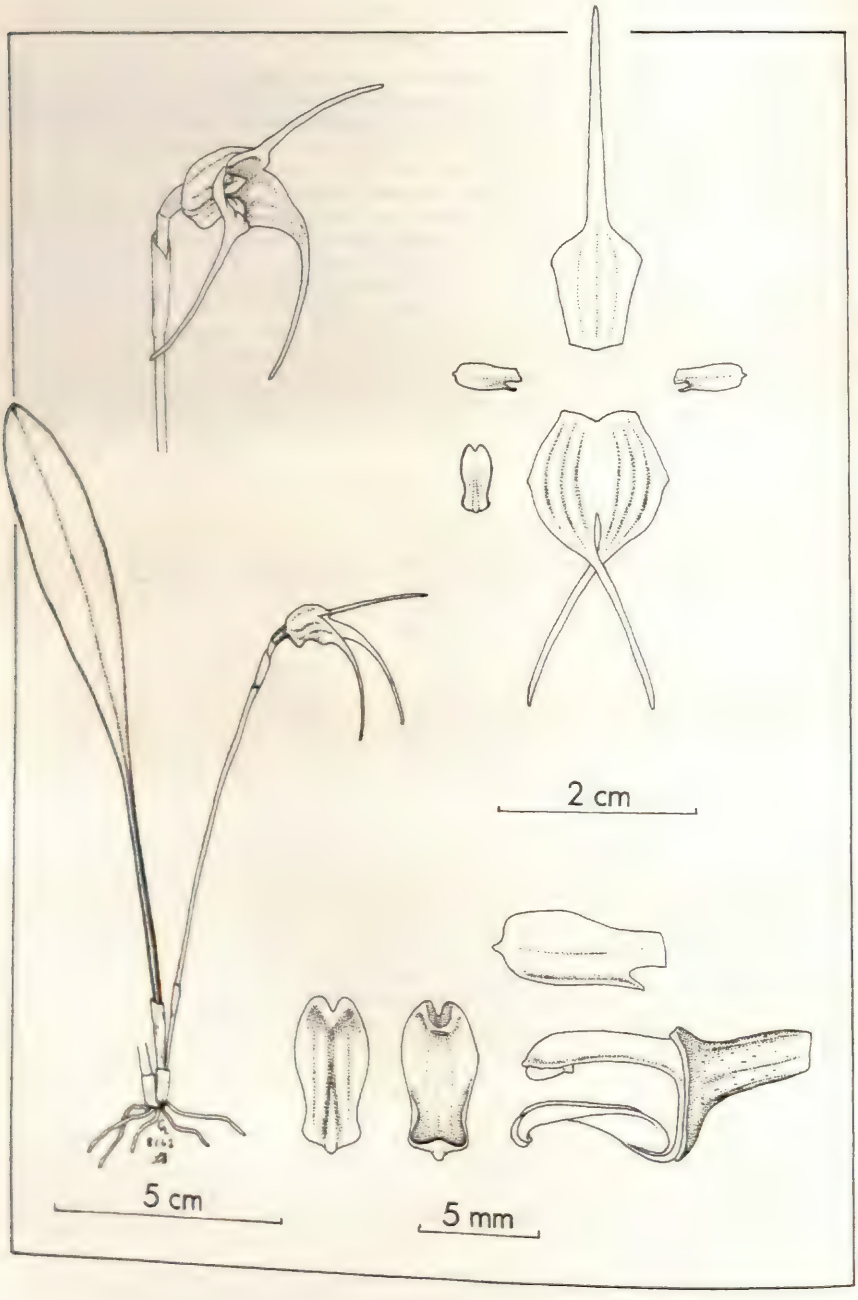


Plate 281. Masdevallia ensata

Masdevallia exquisita Luer & Hirtz, Lindleyana 8: 44, 1993.

Ety.: From the Latin *exquisitus*, "choice, excellent," in reference to the flower.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, blackish, 1.5-2.5 cm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 6-11.5 cm long including a petiole 2-4 cm long, the blade elliptical, subacute, 1.1-1.6 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single flower, borne by a slender, erect peduncle 4-4.5 cm long, with a thin bract near the base, from near the base of a ramicaul; floral bract tubular, 10-11 mm long; pedicel 10-15 mm long; ovary 4-5 mm long; **sepals** membranous, snow white, suffused with bright crimson on the middle third and suffused with orange on the basal third, sparsely long-pubescent, the dorsal sepal obovate, 15 mm long, 13 mm wide at the junction with the lateral sepals, connate to the lateral sepals for 12 mm to form a campanulate tube, the free portion transversely obtuse, abruptly contracted into a slender, yellow-green tail 5 cm long, the lateral sepals ovate, obtuse, oblique, 15 mm long, connate 9 mm into a lamina 20 mm broad, forming a mentum with the column-foot, the apices contracted into slender tails similar to that of the dorsal sepal; **petals** white, oblong, with the apex truncate and obscurely 3-lobed, 6 mm long, 3 mm wide, the labellar margin with a thick longitudinal callus ending in an incurved process at the base; **lip** yellow, oblong-subpandurate, 7 mm long expanded, 3 mm wide, the apex acute, deflexed, black, the disc essentially featureless, the base subtruncate, hinged beneath; **column** white, semiterete, 4.5 mm long, the foot 3 mm long with a short, incurved extension.

BOLIVIA: **La Paz**: Prov. of Nor Yungas, epiphytic in trees along a quebrada west of Coroico, alt. ca. 1800 m, collected 27 Aug. 1991, cultivated by A. Hirtz in Quito, Ecuador, 29 Jan. 1992, *C. Luer 16193* (Holotype: MO).

Masdevallia exquisita is apparently endemic in the forested valleys east of La Paz in north-central Bolivia. The elliptical, petiolate leaves of this species are indistinguishable from those of the majority of the medium-sized species of subsection *Masdevallia*.

Although the medium-sized, bell-shaped to shallow-bowl-shaped flower is basically similar to many of the other members of the subsection, it is easily distinguished by the snow white sepals with a brilliant crimson suffusion on the middle third or half, and orange toward the base. The sepals are sparsely long-pubescent above the middle within. The sepaline tails are long and slender. The black tip of the lip is acute and deflexed.

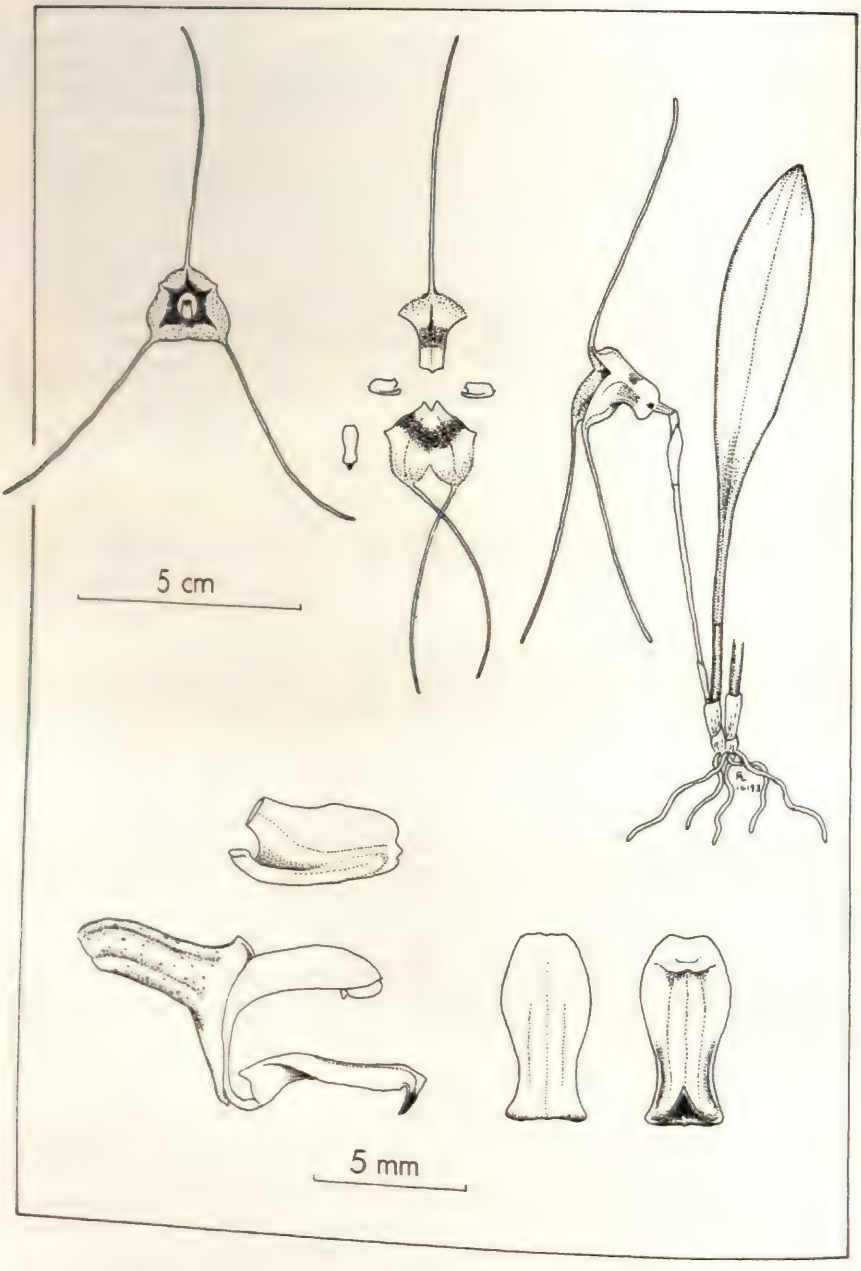


Plate 282. Masdevallia exquisita

Masdevallia falcago Rchb.f., Otia Bot. Hamburgensis 1: 16, 1878.

Ety.: From the Latin *falcatus*, "sickle-shaped," and the suffix *-ago*, referring to the falcate sepals.

Syn.: *Masdevallia trionyx* Kraenzl., Notizbl. Bot. Gart. Berlin-Dahlem 8: 131, 1922.

Ety.: From the Greek *trionyx*, "three-clawed," referring to the three, thick, curved, sepaline tails.

Plant small to medium in size, epiphytic, densely caespitose; roots slender. Ramicauls blackish, erect, slender, 0.5-2 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, more or less mottled with black dorsally, narrowly elliptical-linear, acute, 5-9 cm long, 0.4-0.6 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a solitary flower, borne by a slender, erect peduncle, 5-6.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 6-7 cm long; pedicel 7-19 mm long; ovary black, 3 mm long; **sepals** light green to yellow, glabrous, the dorsal sepal narrowly ovate, 27 mm long, 5 mm wide, connate to the lateral sepals for 5 mm to form a conical, sepaline tube, the free portion gradually narrowed to a thickened, flattened, decurved, taillike, narrowly obtuse apex, the lateral sepals ovate, oblique, 20 mm long, 5 mm wide, connate 2 mm to form an abrupt, short mentum below the column-foot, the free portions triangular, subacute, gradually narrowed into tails similar to that of the dorsal sepal; **petals** white, oblong, 4.5 mm long, 1.75 mm wide, with the apex rounded, the labellar half longitudinally thickened; **lip** greenish white, oblong, 5 mm long, 2 mm wide, minutely erose above the middle, with the apex truncate, shortly recurved, the base truncate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 2 mm long, with a long, incurved extension.

COLOMBIA: Without locality, *Purdie s.n.* (Holotype: W; Isotype K). **Norte de Santander**: Sierra Pelada, *Kalbreyer 738* (holotype of *M. trionyx* destroyed at B); subparamo cloud forest below Páramo de Jurisdicciones, alt 2500 m, 30 Apr. 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7684* (SEL); Alto de Pozo, alt. 2400 m, 5 May 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7733* (AMES, MO, SEL). **Santander**: east of Bucaramanga toward Berlin, alt. 3000 m, 7 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10193* (MO).

This species is endemic in the Eastern Cordillera of Colombia where it was first collected independently by Purdie and Kalbreyer over a century ago. It is characterized by a dense clump of narrowly elliptical leaves that are more or less mottled with gray or black. Often many of the single, yellow-green flowers are produced simultaneously. The sepals are connate about midway into a shallow, sepaline cup. The tails are thickened, flattened and recurved, the tail of the dorsal sepal more or less decurved between the tails of the laterals. The oblong petals are merely thickened along the labellar margin without forming a process. The lip is oblong with a broadly obtuse, recurved apex.

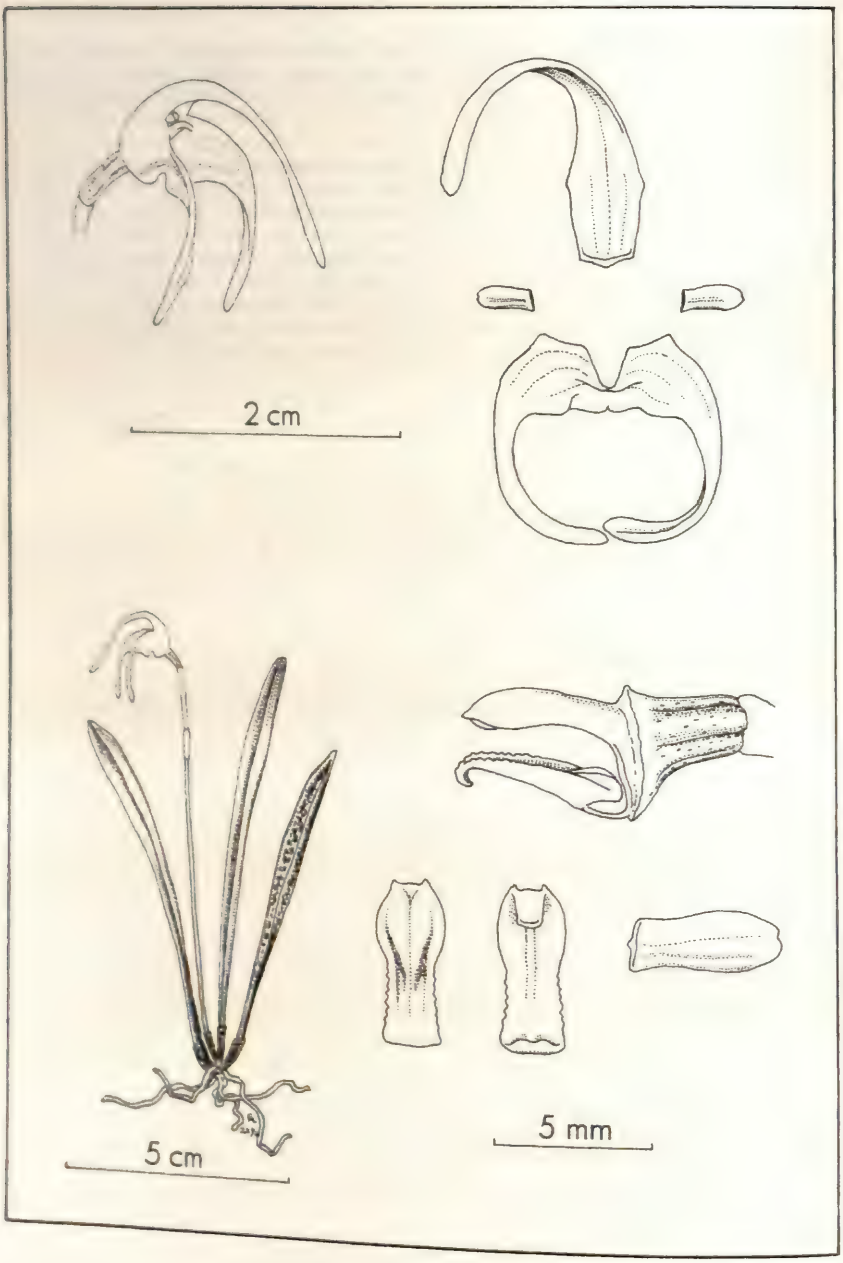


Plate 283. Masdevallia falcago

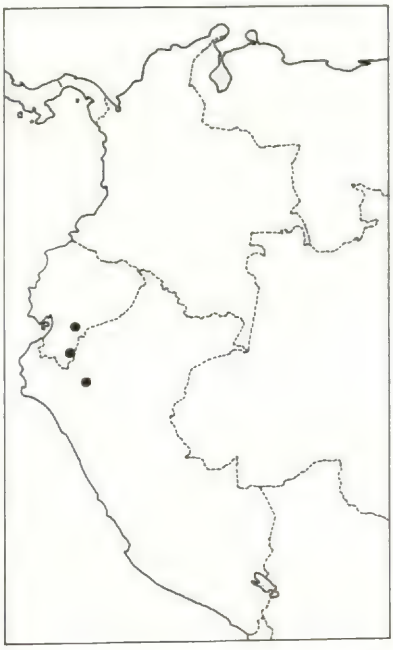
Masdevallia figueroae Luer, Phytologia 39: 202, 1978.

Ety.: Named in honor of Sr. Luis Figueroa of Loja, Ecuador, co-discoverer of this species.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 3-7 cm long, enclosed by 2-3 loose, imbricating, tubular sheaths. **Leaf** erect, coriaceous with prominent lateral veins, petiolate, 8-11 cm long including the petiole 1-3 cm long, the blade elliptical, subacute, 1.5-2.5 cm wide, the base cuneate into the channeled petiole. **Inflorescence** a solitary, showy flower borne by an erect, slender peduncle 8-9 cm long, with a bract near the base, from high on the ramicaul with an annulus, often with the remains of previous peduncles; floral bract tubular, 8-11 mm long; pedicel 5-15 mm long; ovary 5-8 mm long, green with purple dots; **sepals** white to light rose, suffused and dotted with lavender to purple, glabrous externally, shortly pubescent within, the pubescence white to red, the dorsal sepal often purple, obovate, 16 mm long, 6.5-8 mm wide, connate to the lateral sepals for 8-14 mm to form a cylindrical, slightly curved tube, the free portion triangular, acute, contracted into a slender, erect, orange tail 15-30 mm long, the lateral sepals ovate, oblique, 18-22 mm long, 6-9 mm wide, connate 7-13 mm, the acute apices narrowed into orange tails 15-25 mm long; **petals** white, marked with purple, oblong, 5-6 mm long, 2-3 mm wide, the truncate apex obscurely lobed, the lower half callous, sometimes minutely verrucose, the callus ending in a short, thick, retrorse tooth above the base; **lip** white, dotted with purple, subpandurate, 5.5-6.5 mm long, 2.75-3.5 mm wide below the middle, the apical portion white, obtuse, often callous at the obtuse apex, the disc with a pair of low, thick, longitudinal calli, the base subcordate, cleft, hinged below; **column** white, marked with purple, semiterete, 4-5 mm long, the foot stout with an elongate, incurved extension.

ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest south of Yangana near Valladolid, alt. 2600 m, July 1975, collected by W. Teague, L. Figueroa & D. Welisch, cultivated by O. Arango near Medellín, Colombia, 24 Jan. 1978, *C. Luer 2325* (Holotype: SEL; clonotype: K); same area, alt. 2700 m, 3 Mar. 1982, *C. Luer, A. Andreetta, S. Dalström & D. D'Alessandro 7120* (SEL); same area, alt. 2600 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10918* (MO); same area, collected by A. Andreetta & M. Portilla, flowered at Paute, 24 May 1988, *C. Luer 13667* (MO); same area, collected by B. Malo & L. Figueroa, cultivated at Tarqui near Cuenca by Malo, 26 Oct. 1982, (small-flowered form) *C. Luer 8196* (SEL); Nudo de Sabanilla, between Yangana and Valladolid, alt. 2700 m, 4 Apr. 1985, *G. Harling & L. Andersson 23666* (GB).

PERU: ?**Amazonas**: Without locality, obtained from J. Meza T., cultivated by Maduro's Tropical Orchids, Cerro Punta, Chiriquí, Panamá, 15 Nov. 1998, *C. Luer 18994* (MO).



This uncommon species is variable in size and color in its distribution in southern Ecuador and northern Peru. The large-flowered variation was first discovered by Walter Teague, Luis Figuero and David Welisch.

Vegetatively, plants are distinguished by petiolate leaves and elongated ramicauls that produce single-flowered peduncles from near the middle, between the base and the abscission layer. The pale rose, purple-flecked sepals are connate into a cylindrical tube. The sepals also are variously suffused and striped in purple along the midveins. The petals are broad, speckled with purple, and callous on the labellar half with an obtuse, basal tooth. The lip is slightly pandurate, shallowly channeled between a pair of longitudinal calli, and with an apical callus and cleft base.

A smaller-flowered variation (Plate 285) grows within the Ecuadorian distribution, and an even smaller-flowered variation (Plate 286) occurs in northern Peru.

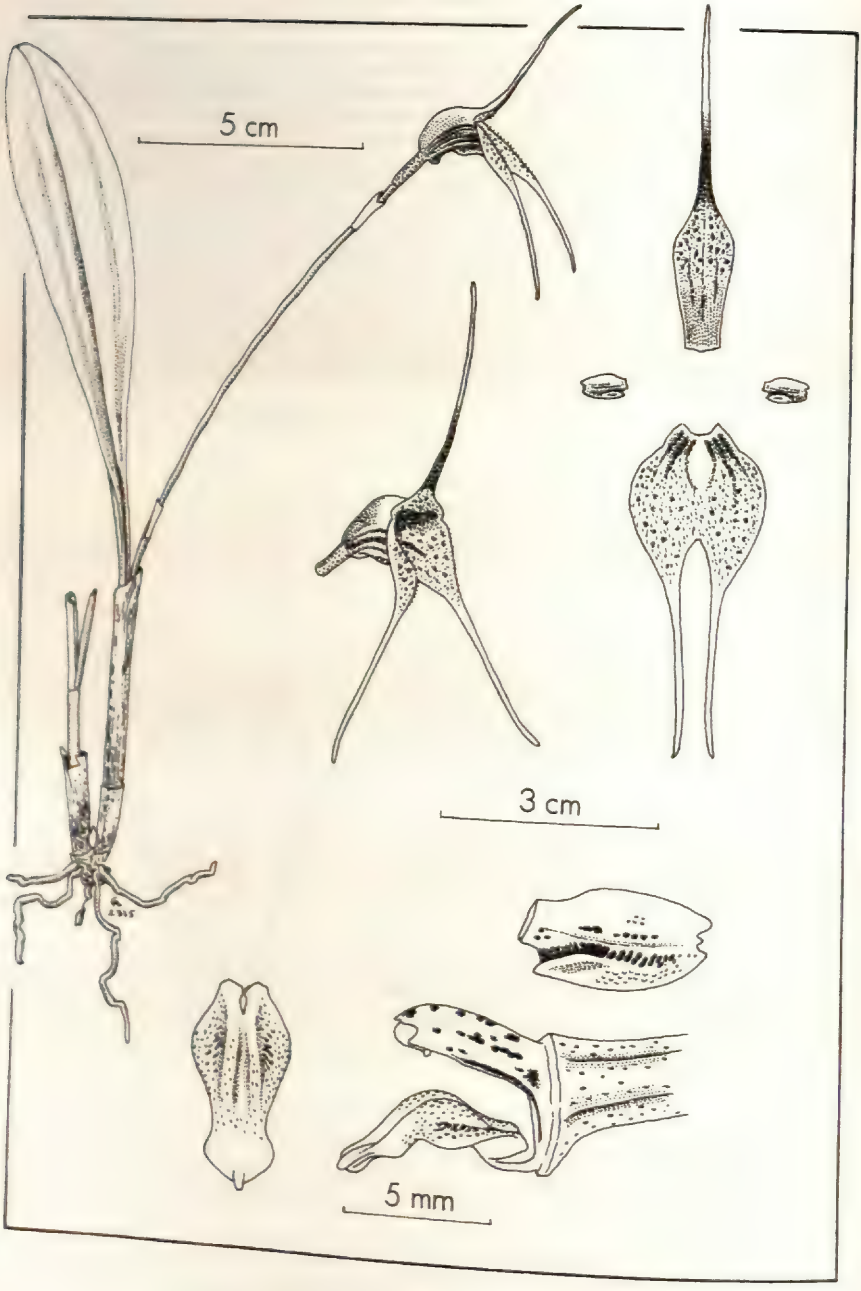


Plate 284. Masdevallia figueroae

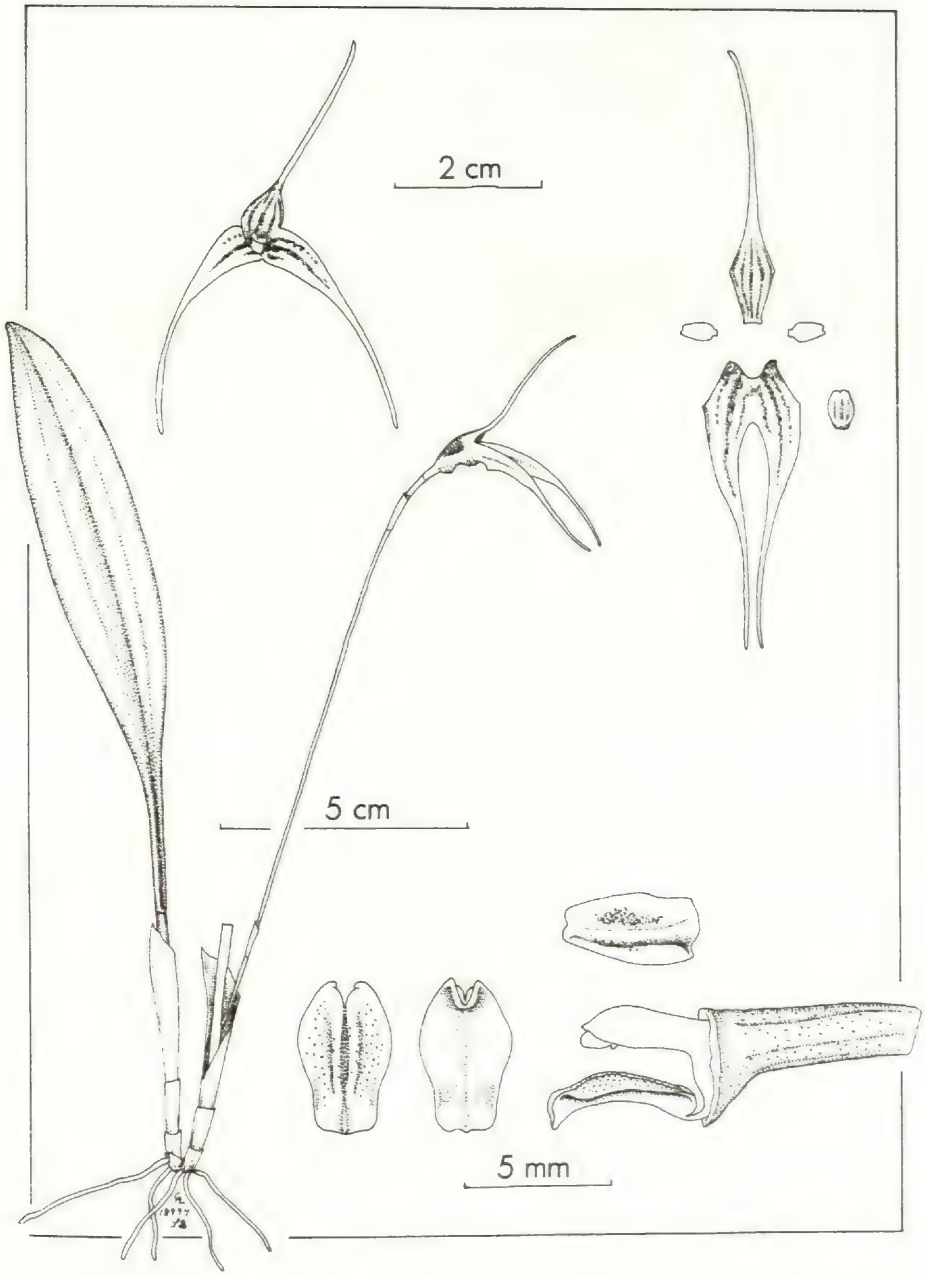


Plate 285. Masdevallia figueroae

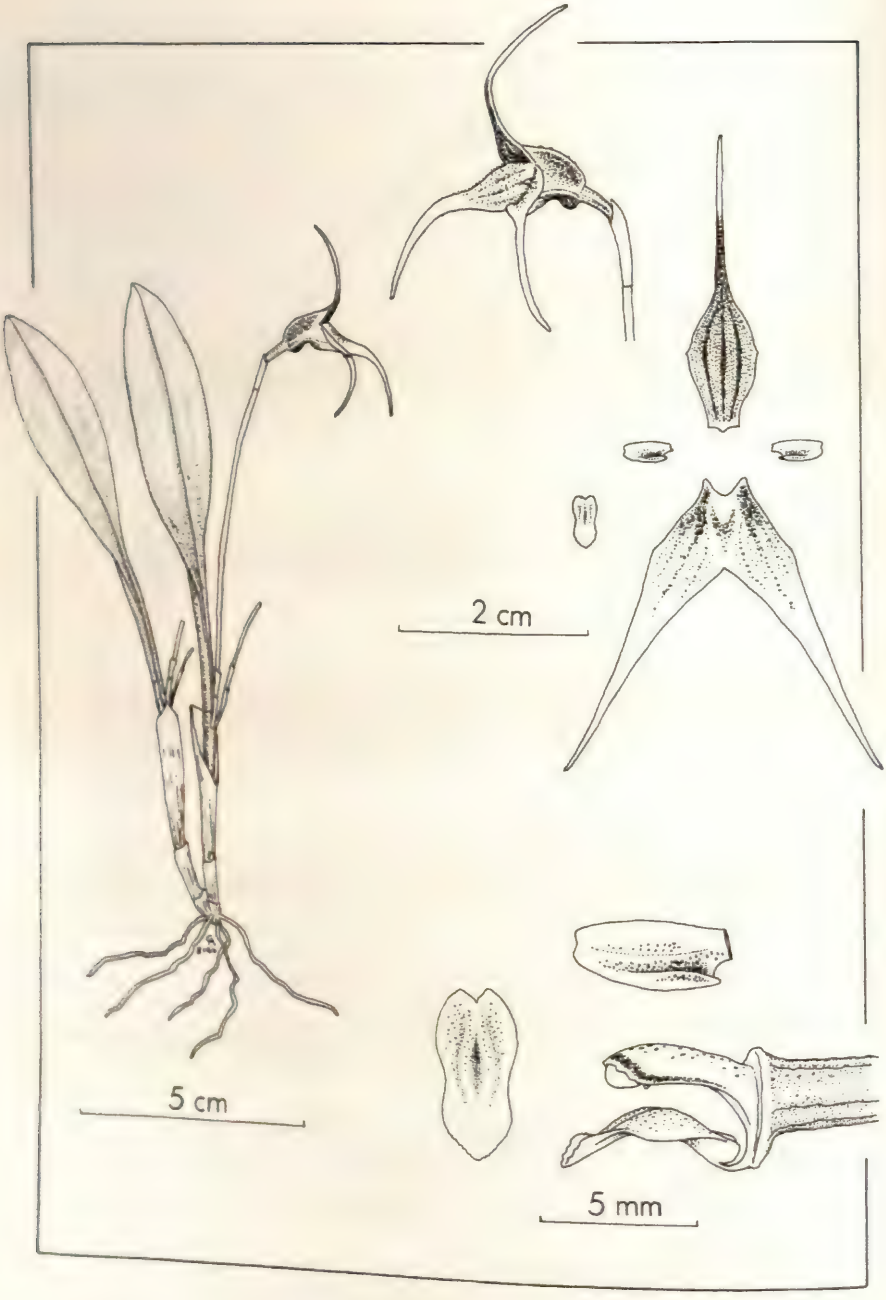


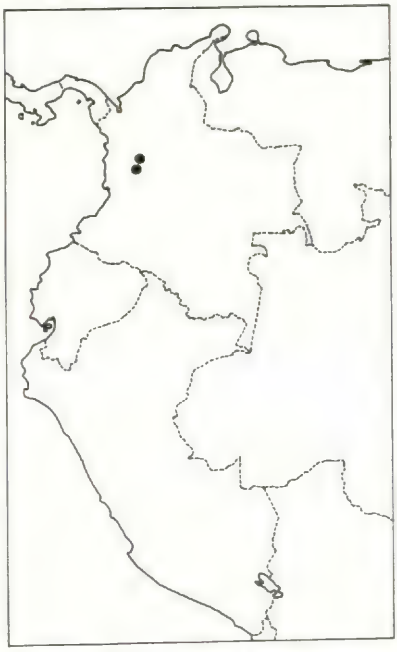
Plate 286. Masdevallia figueroae

Masdevallia gilbertoi Luer & Escobar, Orquideología 13: 75, 1978.

Ety.: Named in honor of Sr. Gilberto Escobar R. of Medellín, Colombia, who was the first *Masdevallia*-enthusiast to cultivate this species.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 7-13 cm long including the petiole 2-5 cm long, the blade elliptical, subacute to obtuse, 2-3 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a solitary, showy flower born by a slender, erect peduncle 6-10 cm long, with a bract above the base, from low on the ramicaul; floral bract thin, tubular, 8-9 mm long; pedicel 5-7 mm long; ovary 5 mm long; **sepals** white, suffused with orange toward the base, variously spotted or suffused with purple, glabrous, the dorsal sepal obovate, 17-18 mm long, 8 mm wide, connate to the lateral sepals for 9 mm to form a conical, sepaline tube, the rounded free portion contracted into a slender, orange, forwardly directed tail 4.5-5.5 cm long, the lateral sepals decussate, falcate, to 7 or 8 cm long including the long, attenuated apices and tails, 5-6 mm wide, connate 8 mm to form a secondary mentum, the contracted base forming a short primary mentum with the column-foot; **petals** white, oblong, obtuse, 6 mm long, 3 mm wide, the labellar margin with a longitudinal callus terminating in a slender, free, incurved tooth above the base; **lip** white, suffused and dotted with rose, oblong-subpandurate, 6 mm long, 2.5 mm wide, the apex obtuse, reflexed, the disc with a low pair of longitudinal calli, the base subtruncate, hinged on the end; **column** white, semiterete, 5 mm long, the foot 2 mm long with a short, incurved extension.

COLOMBIA: **Risaralda**: Anserma, alt. 2000 m, 1966, collected by B. Tascon, cultivated by G. Escobar, #153, at El Retiro, later by M. & O. Robledo at La Ceja, 6 June 1972, *R. Escobar 440* (Holotype: JAUM; clonotype: K); same collection, cultivated at La Ceja, Oct.1977, *C. Luer 1927* (SEL); west slopes of Tatamá, in the Arraganel, alt. 2000 m, without date, *F.C. Lehmann t. 276* (K, W); Pueblo Rico, Cerro Tatamá, alt. 2300 m, collected by G. Serna, 1987, cultivated at Colomborquídeas, 17 Apr. 1988, *C. Luer 13248* (MO).



One plant of this spectacular species was collected near Anserma in the department of Risaralda, and cultivated near Medellín, Colombia, by Sr. Gilberto Escobar, for whom it was named. For years, other plants were sought, but in vain. In 1987, the species was finally rediscovered on the slopes of Cerro Tatamá in Risaralda.

In Reichenbach's herbarium an unidentified watercolor painting of a flower, made by Consul Lehmann in the nineteenth century, was believed to be this species, but with no data. Using obscure clues, it was recently united with an unidentified herbarium specimen, now with collection data. Lehmann's collection is also from Cerro Tatamá.

The flowers are distinctive with the long, forwardly pointing tail of the dorsal sepal and the long, crossed, reflexed tails of the lateral sepals.

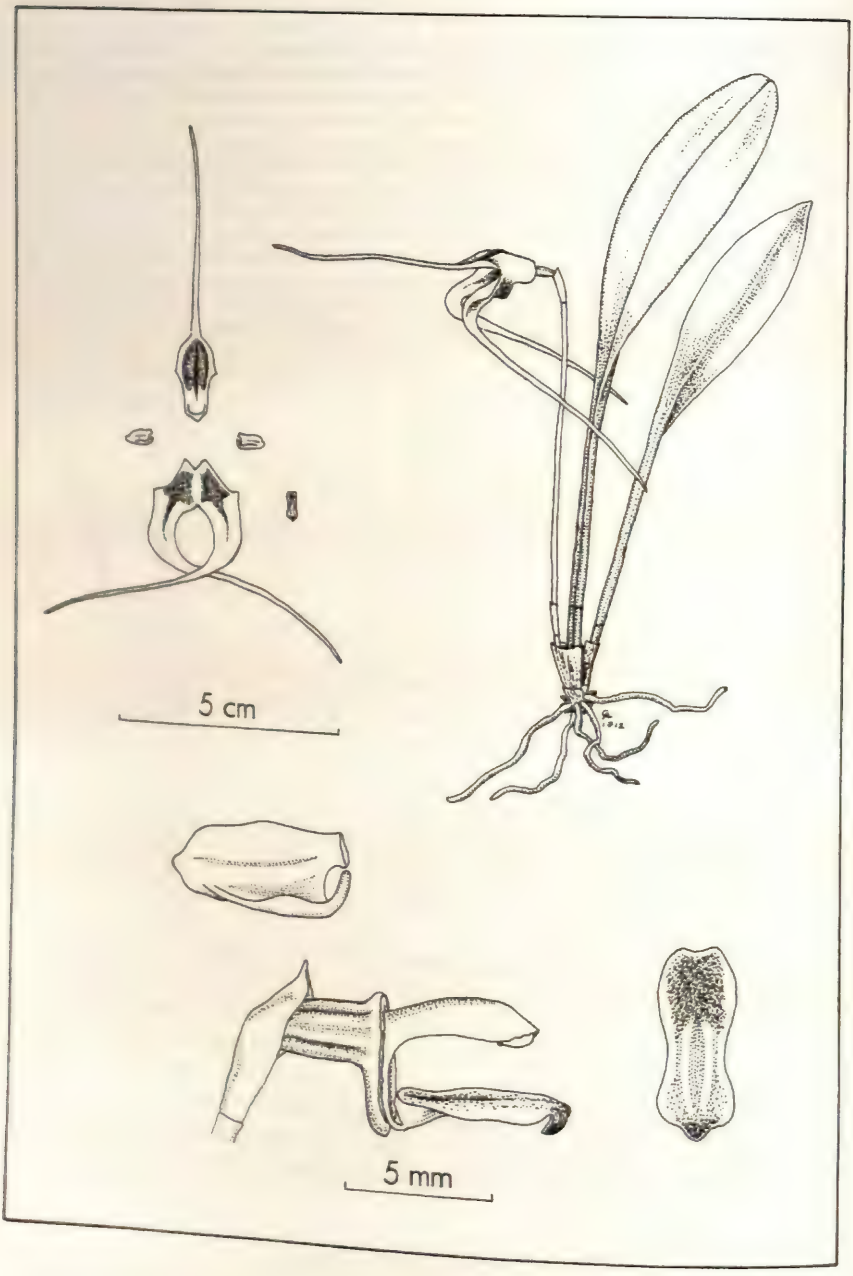


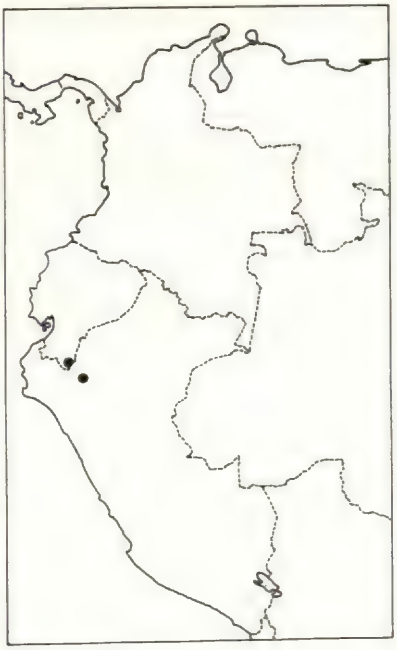
Plate 287. Masdevallia gilbertoi

Masdevallia glandulosa Königer, Die Orchidee 30: 76, 1979; emend. 36: 87, 1985.

Ety.: From the Latin *glandulosus*, "bearing glands," referring to the integument of the sepals.

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls blackish, slender, erect, 1-3 cm long, enclosed by 2-3 dark, tubular sheaths. **Leaf** erect, coriaceous, 7-12 cm long including the petiole 3-5 cm long, the blade elliptical, subacute, 1.5-2.2 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a single flower borne by a slender, erect peduncle 4-5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 9-10 mm long; pedicel white, 12 mm long; ovary 5-9 mm long; **sepals** bright rose, yellow toward the base, conspicuously glandular-pubescent within, the dorsal sepal obovate, 20 mm long, 8 mm wide, connate to the lateral sepals for 12 mm to form a conical, sepaline tube, the free portion rounded with the apex contracted into a slender tail 3.5 cm long, orange above the middle, the lateral sepals obovate, oblique, 22-25 mm long, 10-14 mm wide, connate to each other for 12 mm, the apices subacute, contracted into tails similar to that of the dorsal sepal; **petals** white, oblong, 5.5 mm long, 1.75 mm wide, the obtuse apex oblique, obscurely bilobed, the labellar margin with a longitudinal carina ending in an oblong, descending, retrorse process above the base; **lip** white, suffused with rose, cuneate-obovate, 5.5 mm long, 3 mm wide, the broadly obtuse apex contracted into a short, narrow segment with a small, dark purple callus, the base truncate, hinged beneath; **column** yellow-white, semiterete, 4.5 mm long, the foot 3 mm long, with an incurved extension.

PERU: **Amazonas**: epiphytic on thick, mossy trunks, between Bagua and Chachapoyas, alt. 1200 m, Aug. 1978, *W. Königer, H. Königer, B. Würstle & E. Lopez* (Holotype: SEL; clonotypes: K, M); same collection, cultivated by W. Königer in Munich, Germany, Mar. 1979, *C. Luer 4055* (SEL); same collection, cultivated at Colomborquídeas, 20 Apr. 1988, *C. Luer 13280* (MO).
ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest above Zumba, alt. 1800 m, collected by D. D'Alessandro, Jan. 1988, cultivated by B. Malo at Tarqui, 25 May 1988, *C. Luer 13682* (MO).



This handsome species occurs locally in southeastern Ecuador and northern Peru. Vegetatively similar to many other species of the genus, *M. glandulosa* is easily identified by the bright rose-colored flowers. They are highly fragrant of cinnamon. The sepals are connate about midway into a tube, and the free portions are conspicuously glandular-pubescent within. An oblong process descends from the base of the petals. The lip is cuneate with the broadly obtuse apex contracted into a short, decurved segment with a dark callus.

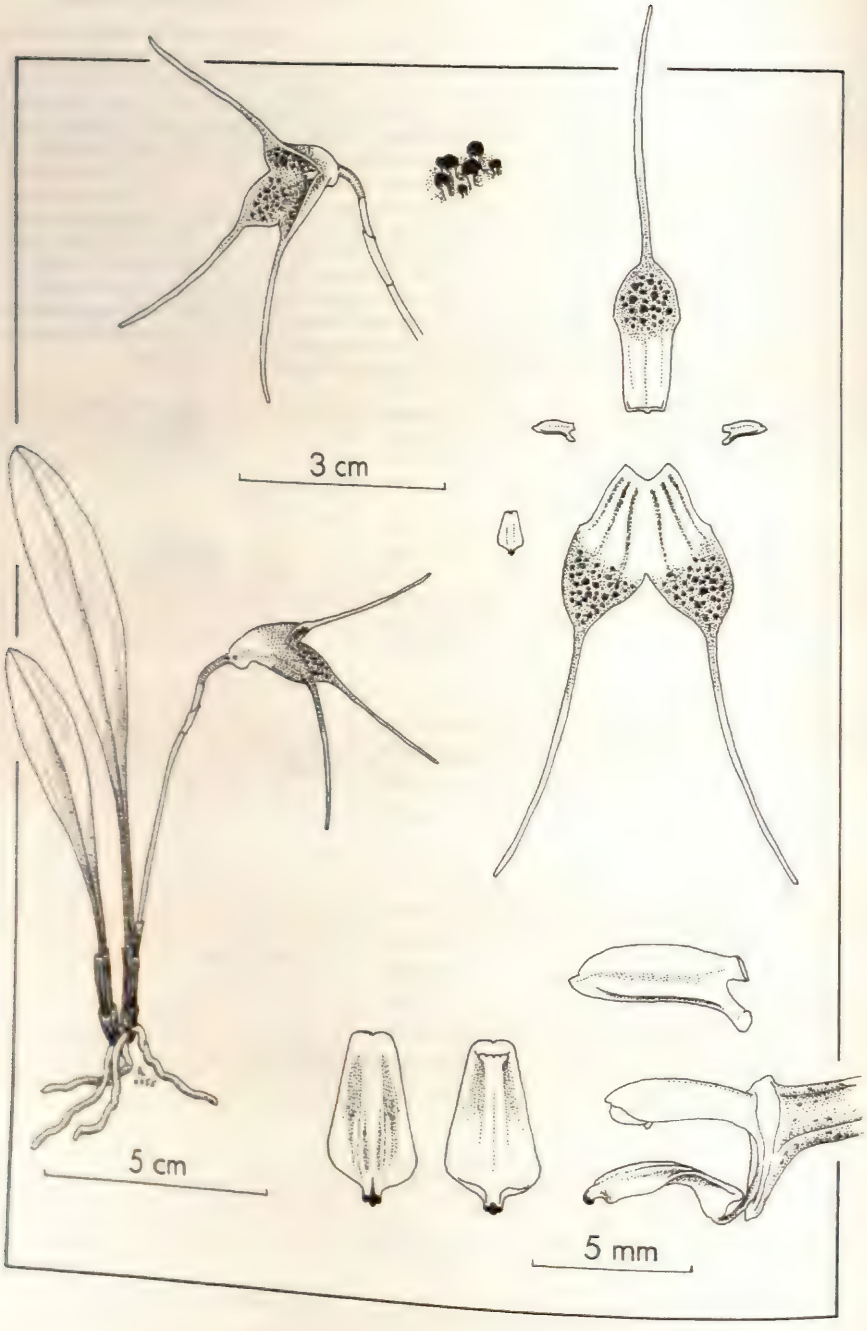


Plate 288. Masdevallia glandulosa

Masdevallia glomerosa Luer & Andreetta, Lindleyana 6: 87, 1991.

Ety.: From the Latin *glomerosus*, "like a ball," referring to the orbicular shape of the flower.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1.5-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 4-6 cm long including a petiole 1.5-2.5 cm long, the blade elliptical, subacute, 1.5-1.8 cm wide, cuneate below into the petiole. **Inflorescence** a solitary, subglobose, showy, orange flower borne by a slender, erect peduncle 4.5-5 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 10 mm long; pedicel 10-12 mm long; ovary 3 mm long; **sepals** orange with a dark purple spot at the base, glabrous, the dorsal sepal obovate, curved, concave, 14 mm long, 9 mm wide expanded, connate to the lateral sepals for 9 mm to form a subglobose, tube, the apex rounded, abruptly contracted into a slender, erect, yellow tail 20 mm long, the lateral sepals broadly oblong, 12 mm long, 7 mm wide, connate 6 mm into an inflated lamina 16 mm broad expanded, the free portions rounded, abruptly contracted into slender tails 18 mm long, similar to that of the dorsal sepal; **petals** white, thick, subtriangular, 5 mm long, 2 mm wide, 3 mm wide above the base, the apex subtruncate, tridentate, the labellar margin with a longitudinal callus ending in a thick, retrorse process at the base; **lip** orange with the apex dark purple, oblong, 5 mm long, 3.5 mm wide, the sides obtusely angled above the middle, the apex truncate, lightly recurved, with a midline callus, the disc superficially channeled, the base subcordate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 3 mm long, with a slender, incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in forest east of Paute, alt. ca. 1800 m, 1990, collected by A. Andreetta, cultivated at Paute, Feb. 1990, *S. Dalström 1477* (Holotype: MO), C. Luer illustr. 14913.

This species was discovered by Padre Angel Andreetta and cultivated by him at Paute in southern Ecuador. The orange, subglobose flower is most similar to that of the Peruvian *M. cranion*, but the orange color is similar to that of *M. limax* with which it is sympatric. The sepals are deeply connate into an inflated flower with the rounded apices of the sepals contracted into slender tails. Together, the lateral sepals form a broad, shallow mentum. The petals are longitudinally callous with a thick, retrorse process at the base. The lip is thin with the margins slightly deflexed above obtuse, marginal angles.

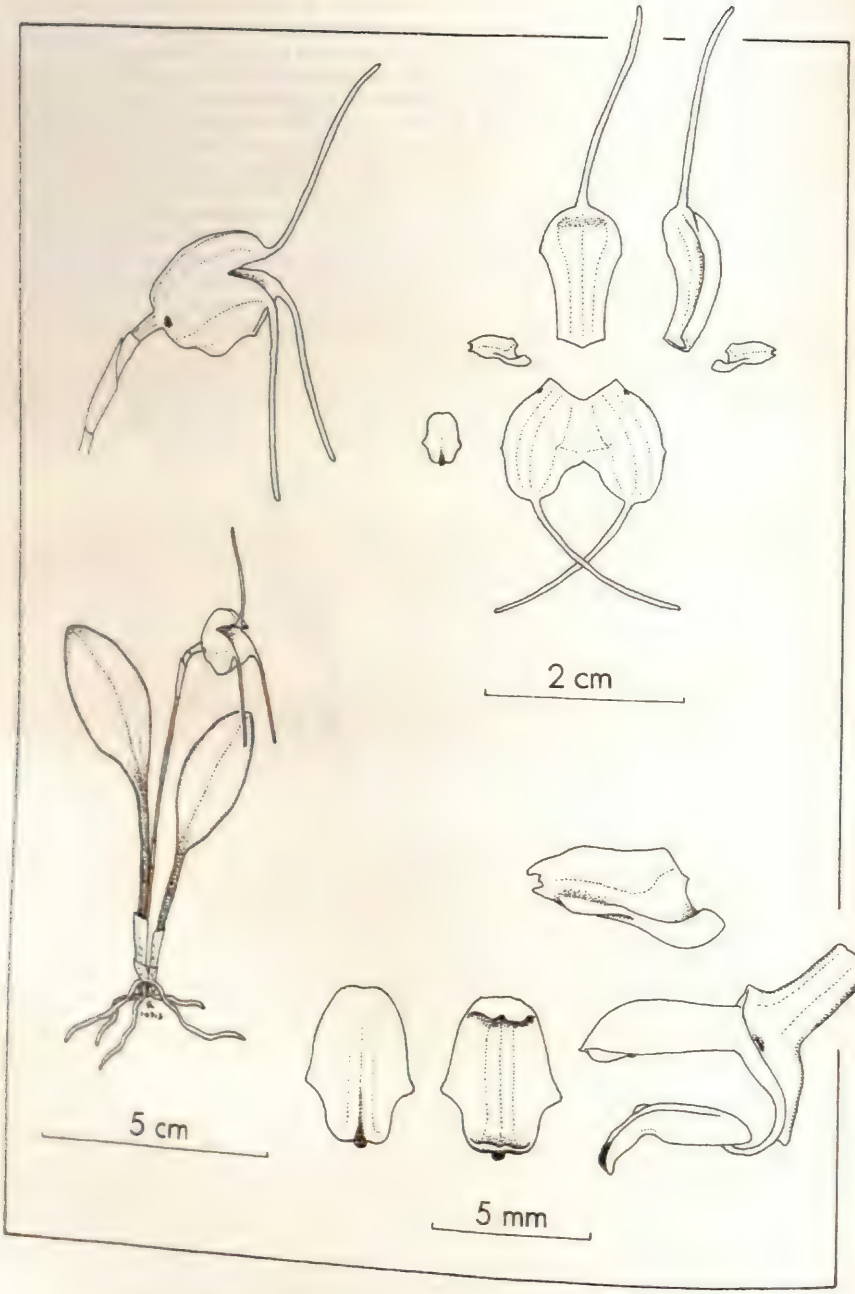


Plate 289. Masdevallia glomerosa

Masdevallia guayanensis Lindl. ex Benth., J. Bot. 2: 673, 1843.
Ety.: Named for Guayana, the country of origin,

Syn.: *Masdevallia manarana* Carnevali & Ramírez, Ernstia 44: 15, 1987.
Ety.: Named for the illustrator, Bruno José Manara.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 1.5-2 cm long, enclosed by 2-3 thin, close, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute, 6-12 cm long including an indistinct petiole 1.5-3 cm long, 1.3-1.8 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a single flower borne by a slender, suberect peduncle, 10-13 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 7 mm long; pedicel 12 mm long; ovary 5 mm long; **sepals** white, glabrous, the blade of the dorsal sepal obovate, 13 mm long, 6 mm wide, connate to the lateral sepals for 8 mm into a cylindrical tube, the free portion triangular, acute, contracted into an erect, slender, greenish white tail ca. 3 cm long, the lateral sepals obovate, oblique, the blades 16 mm long, 7 mm wide, connate 5 mm, the apices acute, contracted into tails similar to but shorter than that of the dorsal sepal; **petals** white, oblong, 5 mm long, 2.25 mm wide, the apex obtuse, truncate, the labellar margin with a low, longitudinal callus ending in a short, obtuse tooth between the middle and lower thirds; **lip** white, oblong, 6 mm long, 3 mm wide, the apex yellowish white, obtuse, with microscopically erose margins, with a low callus in the center, the disc shallowly sulcate between a low, longitudinal pair of calli,the base subtruncate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 3 mm long with an incurved extension.

GUYANA: "Interior of British Guayana," Roraima expedition, 1839, *R. Schomburgk 1026* (Holotype: K; Isotypes: AMES, BM, BR, W).
VENEZUELA: Guyana highlands, collected by Mark Chase, cultivated at Great Lakes Orchids, 15 Dec. 1986, *C. Luer 11646* (MO). **Amazonas**: Río Negro, Cerro de La Neblina, alt. 1850 m, 29 Nov. 1984, *W. R. Anderson 13415* (holotype of *M. manarana*: VEN; isotype: MICH).

This species was first collected by Richard Schomburgk, German botanist and explorer, while on the Roraima expedition in British Guyana in 1839. It is rarely collected today because of the remoteness of its habitat in the highlands of Guyana and neighboring Venezuela. Its identity was confused with the Costa Rican *M. attenuata* when the type of the latter in the Reichenbach herbarium was annotated by Kränzlin as *M. guayanensis*.

Masdevallia guayanensis is characterized by a single, white, tubular flower produced on a long, weak peduncle. The acute apices of the sepals are contracted into slender, greenish tails. The petals are truncate with an obtuse tooth between the middle and lower thirds. The apex of the oblong lip is obtuse with a low callus, and the disc is free of longitudinal calli.

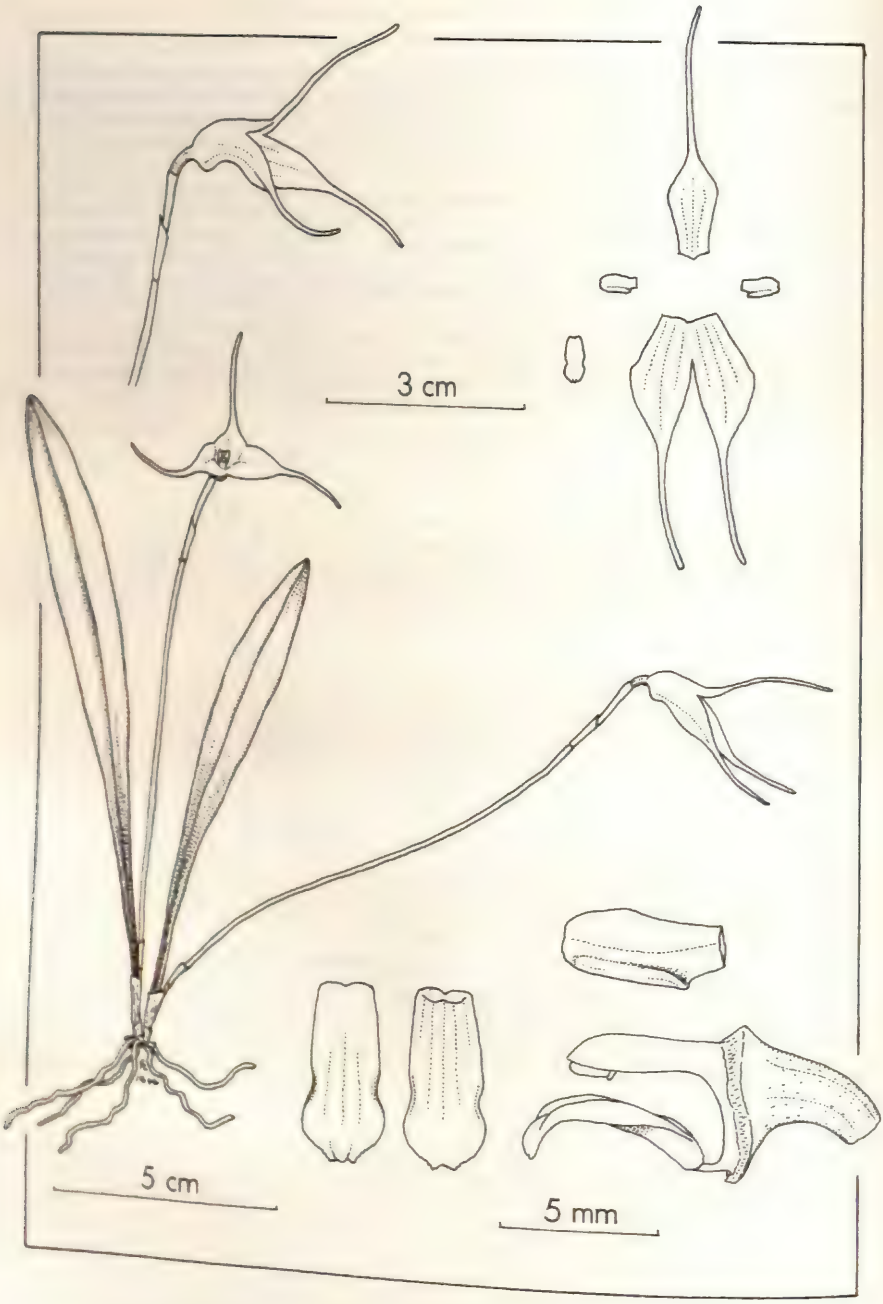


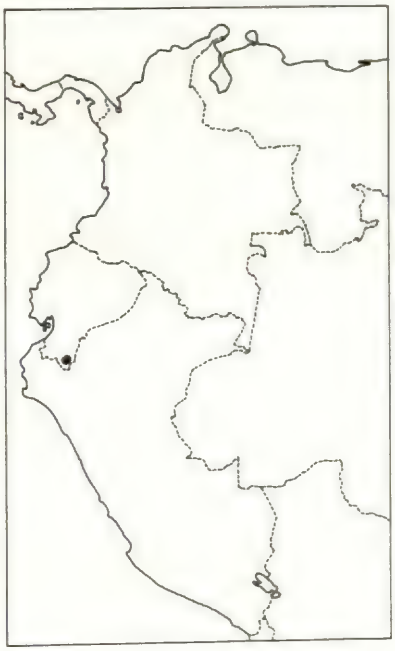
Plate 290. Masdevallia guayanensis

Masdevallia hartmanii Luer, Lindleyana 9: 106, 1994.

Ety: Named in honor of the late Hartman Eudaldo Mendoza of Vilcabamba, Ecuador, who discovered this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, blackish, erect, 8-10 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 3.5-5 cm long including the 1.5-2 cm long petiole, the blade pale green beneath, speckled with black, elliptical, subacute, 8-10 mm wide, the base cuneate into the slender petiole dotted with black. **Inflorescence** a single flower borne by a slender, suberect peduncle up to 10-12 mm long, from low on the ramicaul; floral bract tubular, 8 mm long; pedicel 6 mm long; ovary 4 mm long; **sepals** rose-purple, yellow toward the base with 3 darker purple stripes on the dorsal sepal, glabrous, the blade of the dorsal sepal obovate, 11 mm long, 7 mm wide, connate to the lateral sepals for 8 mm to form a broad, cylindrical tube, the apex broadly rounded, abruptly contracted into a yellow, reflexed tail 15 mm long, thickened in the distal half, the lateral sepals more or less ovate, concave, oblique, 10 mm long, 6 mm wide, connate 4 mm, the apices obtuse, contracted into tails thickened above the middle, similar to that of the dorsal sepal; **petals** yellow, obliquely ovate-triangular, narrowed to an irregularly acute apex, 4 mm long, 2.5 mm wide above the base, the labellar margin with a longitudinal callus terminating in an acute, incurved process; **lip** light yellow, speckled with brown, elliptical-oblong, 4 mm long, 2 mm wide, the sides with rounded expansions on the middle third, the apex rounded, recurved, with a small callus, the disc shallowly sulcate, the base subtruncate, hinged beneath; **column** light yellow with purple margins, semiterete, 4 mm long, the foot 3 mm long with an incurved extension.

ECUADOR: **Zamora-Chinchipe**: epiphytic in forest east of Palanda, alt. ca. 2000 m, collected by Hartman Mendoza, 1993, cultivated Feb. 1994, obtained from M. Portilla via J & L Orchids, Easton, CT, *C. Luer 17118* (Holotype: MO).



This little species was one of the last discoveries of Hartman Mendoza who was lost in a tragic accident in a bus. After his death, the single plant was cared for shortly by the Portilla brothers until it was given at the request of Dennis D'Alessandro to J & L Orchids for cultivation and identification.

Masdevallia hartmanii is distinguished by the small, broadly cylindrical flower borne by a short peduncle. The sepals are rose-colored, the dorsal with three purple stripes. The bright yellow tails are slightly longer than the blades and thickened above the middle. The petals are triangular and acute. The oblong lip is dilated on the middle third of each side into a rounded expansion.

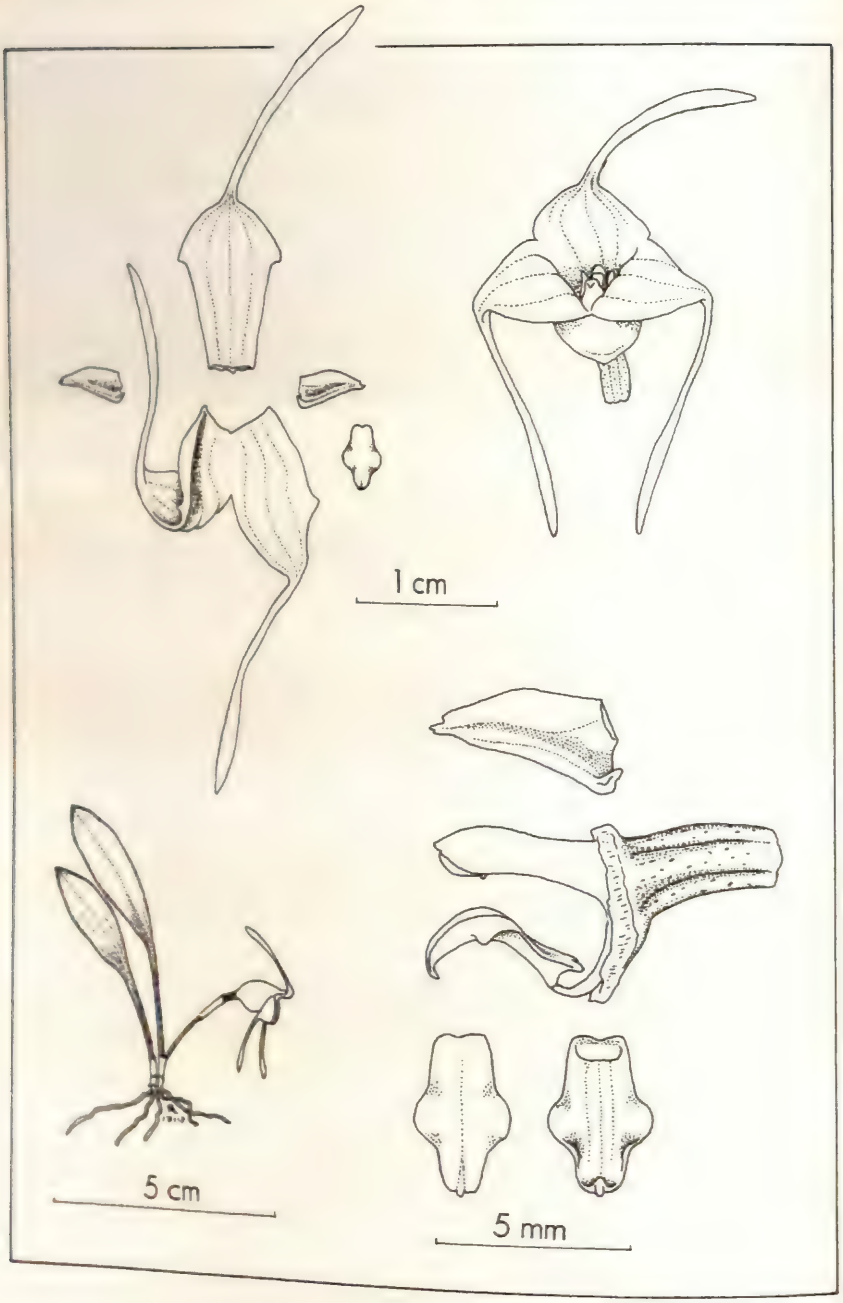


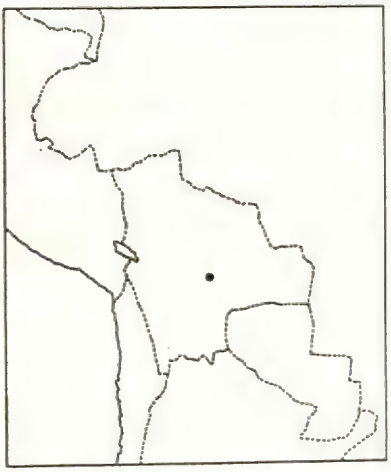
Plate 291. Masdevallia hartmanii

Masdevallia heideri Königer, Die Orchidee 42: 8, 1991.

Ety.: Named in honor of Helmut Heider who first collected this species.

Plant medium in size, epiphytic, densely caespitose; roots coarse. Ramicauls blackish, slender, erect, 1-2 mm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 4-8 cm long including the petiole 1.5-3 cm long, the blade narrowly elliptical, subacute, 1.5-2 cm wide, the base cuneate into the blackish petiole. **Inflorescence** a solitary flower, borne by a slender, suberect peduncle 1.5-3 cm long, with a bract above the base, from low on the ramicaul; floral bract 7-8 mm long; pedicels 7-10 mm long; ovary 4-5 mm long; **sepals** fleshy, brownish purple, intensely spotted and suffused with darker brownish purple, glabrous externally, pubescent within above the middle, the trichomes simple or caespitose, the dorsal sepal narrowly obovate, concave, 15-17 mm long, 8 mm wide expanded, connate to the lateral sepals for 10-11 mm to form an arcuate, sepaline tube, the apex broadly obtuse, abruptly contracted into a forwardly directed, 1 mm thick, olive-colored tail 8-10 mm long, the lateral sepals 12-17 mm long, connate 9-10 mm into a bifid, more or less obovate lamina, the free portions 8 mm wide, obtuse, contracted into tails similar to that of the dorsal sepal; **petals** translucent, marked with dark purple, oblong-obovate, 10 mm long, 4 mm wide, the apex obscurely bi- or tridentate, with a longitudinal carina along the labellar margin terminating at the base in a broad, thick, descending, dark purple process, with the tip incurved; **lip** tan, marked with purple, the spots confluent below the middle, oblong, 5 mm long, 2 mm wide, the apex obtuse, apiculate, decurved, the disc shallowly channeled, the base thick and deep, presenting a flat, subquadrate surface on the end, hinged beneath; **column** white, stout, semiterete, 4 mm long, with a foot equally long including a slender extension 2 mm long.

BOLIVIA: **Santa Cruz**: Samaipata, Río Bermejo, alt. 1700 m, collected by H. Heider, P. Horn & R. Horn, date unknown, cultivated by W. Königer in Munich, Germany, date unknown, *W. Königer WK-14* (Holotype: M; Isotypes: K, LPB, herb. H. Königer); epiphytic in moist forest above Mairana, La Yunga, alt. 2090 m, 8 Sept. 1991, *C. Luer, J. Luer, R. Vásquez & D. Ric 15415* (MO).



This species occurs in cool moist forests of central Bolivia where it grows abundantly. Unfortunately, these forests are currently in the process of being cut and burned. Much less frequent in the same forest *M. ricii* also is to be found. Although this species appears superficially to belong to section *Coriaceae*, it is a member of subsection *Masdevallia* of section *Masdevallia* by virtue of the non-ventricose, sepaline tube; a large, inflexed process at the base of the petals; and a thin, non-verrucose lip. Although closely related to *M. ricii* with which it grows, this species is obviously distinct in the shorter peduncles, shorter sepaline tube intensely spotted and suffused with dark brownish purple, and short, thick tails. The morphology of the petals and lip is similar.

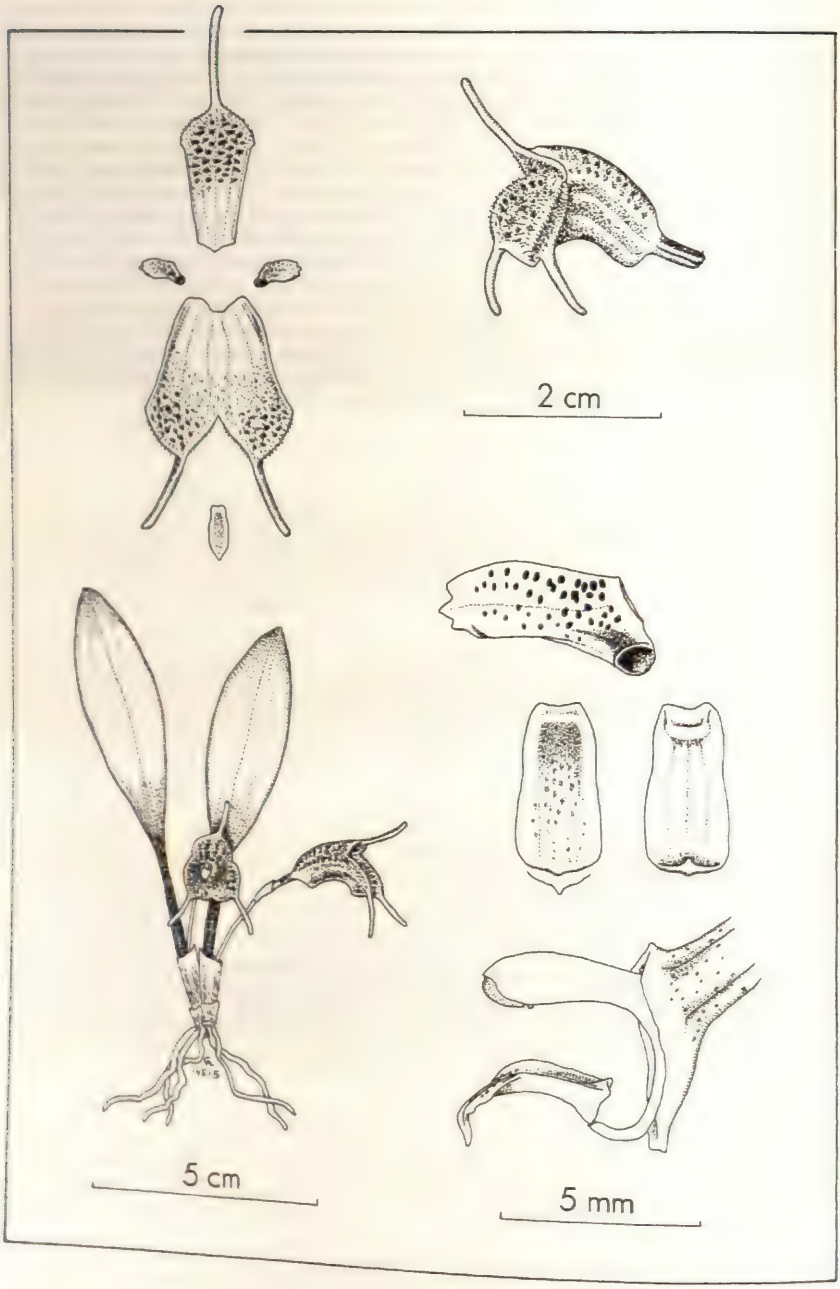


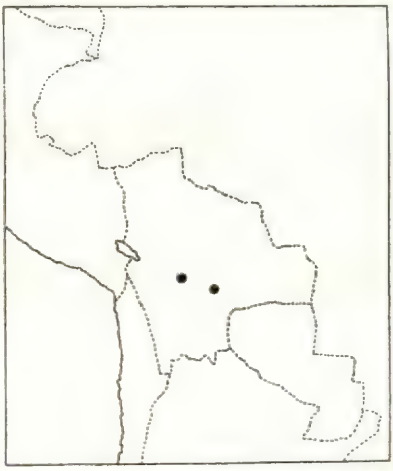
Plate 292. Masdevallia heideri

Masdevallia helenae Luer, Selbyana 2: 374, 1978.

Ety.: Named in honor of Helen Kuhn, formerly of Easton, CT, who first collected this species.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 6-9 cm long including an indistinct petiole 2-3 cm long, the blade narrowly obovate, subacute to obtuse, 1.2-1.8 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a solitary flower, borne by a slender, erect to suberect peduncle, 4-5 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 5-6 mm long; pedicel 6-8 mm long; ovary 7-8 mm long; **sepals** light yellow-green below the middle, fading into light yellow-orange above the middle, each sepal with 3 purple veins, glabrous, the dorsal sepal obovate, 14 mm long, 6 mm wide, connate to the lateral sepals for 9 mm into a cylindrical, sepaline tube, the triangular free portion subacute, contracted into an erect, slender, yellow-green tail 18 mm long, the lateral sepals oblong, oblique, 15 mm long, 5 mm wide, connate 8 mm to form a shallow mentum, the apices subacute, contracted into tails similar to that of the dorsal sepal; **petals** white, marked with purple, oblong, 6 mm long, 2.5 mm wide, with the apex obscurely lobed, the labellar margin with a thick, longitudinal callus ending in a large, thick, obtuse, incurved and retrorse process above the base; **lip** red-orange, marked with darker red, oblong, 6 mm long, 2.5 mm wide, with the apex yellow, subacute, the disc shallowly sulcate between a low, parallel pair of longitudinal calli, the base subcordate, hinged beneath; **column** white, with the margin purple, semiterete, 6 mm long, the foot 3 mm long, with a slender, incurved extension.

BOLIVIA: **Santa Cruz**: without more specific locality, possibly near Samaipata, collected by Helen Kuhn, Aug. 1976, cultivated at J & L Orchids, Easton, CT, 4 Mar. 1978, *C. Luer 2784* (Holotype: SEL). **Cochabamba**: Chapare, Río Panteón Mayu, alt. 1100 m, 12 Dec. 1980, *R. Vásquez 434* (Herb. Vásquezianum).



This species, endemic on the northern slopes of central Bolivia, is superficially similar to the Central American *M. attenuata*, but the two species are not closely related. Vegetatively they are indistinguishable. Both are characterized by a small, tubular flower with three purple stripes on each sepal, and sepaline tails only slightly longer than the blades. *Masdevallia helenae* is single-flowered; the petals have a thick marginal callus ending in a thick, retrorse process; and an oblong, simply shallowly channeled lip with a featureless, subacute apex. *Masdevallia attenuata* is successively flowered; the petals have a minute process between the middle and basal thirds; and a verrucose callus occupies the apex.

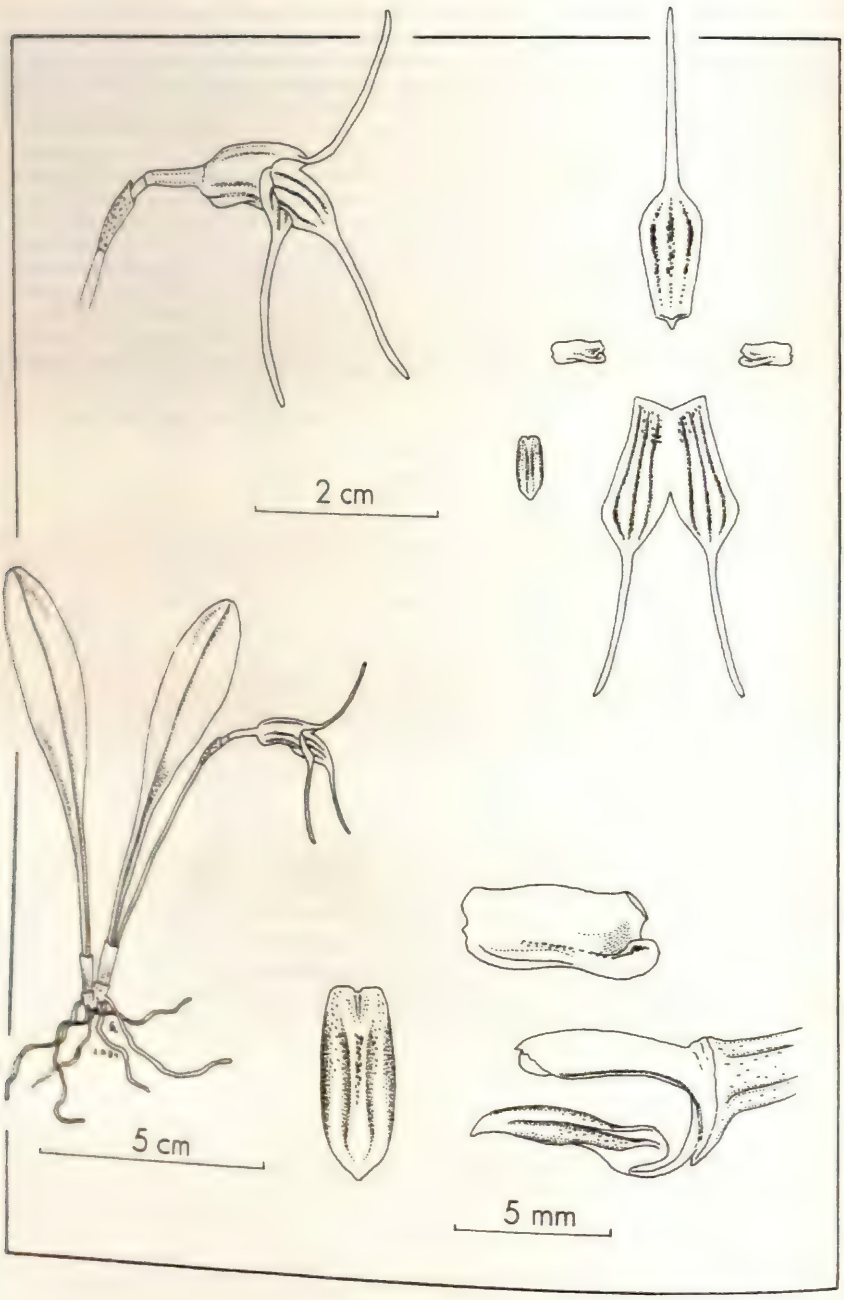


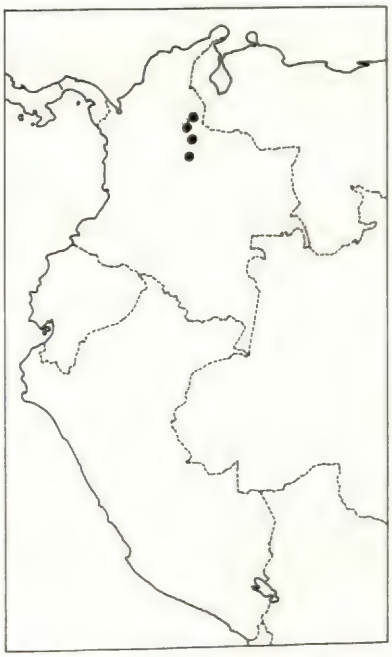
Plate 293. Masdevallia helenae

Masdevallia hians Linden & Rchb.f., Bonplandia 2: 283, 1854.

Ety: From the Latin *hians*, "gaping," referring to the sepaline cup.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 1-2 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 3-9 cm long including the petiole 0.5-2.5 cm long, the blade narrowly elliptical-obovate, acute to subacute, 0.8-1.3 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle 4-6.5 cm long, with a bract above the base, from low on the ramicaul; floral bract 6 mm long; pedicel 8-14 mm long; ovary blackish, 5 mm long; **sepals** creamy white, suffused with yellow below the middle, ciliate, pubescent within above the middle, glabrous externally, the dorsal sepal obovate, 6-8 mm long, 5.5-7 mm wide, connate to the lateral sepals for 4-6 mm to form a gaping, sepaline cup, the apex broadly rounded, abruptly contracted into an erect, slender, light yellow tail 1.5-2 cm long, the lateral sepals obovate, oblique, 8-10 mm long, 4-6 mm wide, connate 2.5-3.5 mm, forming a deep mentum with the column-foot, the obtuse apices contracted into slender, descending tails 1-1.5 cm long; **petals** creamy white with purple midvein, oblong, unguiculate, 3-3.5 mm long, 2 mm wide, the apex obtuse to rounded, obscurely lobulate, the labellar margin dilated with a shallow, oval concavity above an obtuse angle above the unguiculate base; **lip** yellow with 3 purple stripes along 3 longitudinal calli, obovate-subpandurate, 4.5-5.5 mm long, 2.5 mm wide, the sides revolute at the middle, 1.5 mm wide, the apex dilated, obtuse, with the margin minutely fringed-undulate, the disc shallowly sulcate below the middle between a pair of longitudinal calli, the sulcus becoming a middle callus and terminating near the apex, the base deeply retuse-cleft, hinged beneath; **column** white, semiterete, 4 mm long, the foot 1 mm long, with a short, incurved extension.

COLOMBIA: **Norte de Santander**: Ocaña, alt. 8,000 ft., 1846-1852, *L. Schlim 1163* (Holotype: W); Páramo San Pedro, alt. 8,000 ft., *H. Wagener 574* (W); Ocaña, 15 Mar. 1873, *R. Shuttleworth 40* (W); epiphytic in forest below Páramo de Jurisdicciones, alt. 2800 m, 11 Nov. 1981, *C. Luer, J. Luer, R. Escobar & D. Portillo 6665* (SEL); Alto de San Francisco, alt. 2600 m, 11 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10254* (MO). **Boyacá**: El Merei, Vereda Minas, 6 May 1937 *J. Renz 3595* (BAS). **Santander**: epiphytic in scrub, subparamo forest above Bucaramanga, alt. 3250 m, 3 Nov. 1981, *C. Luer, J. Luer, R. Escobar & D. Portillo 6573* (SEL).



This little species is endemic in forests of high altitudes in the Eastern Cordillera of Colombia where it is not uncommon. It was first collected independently by both the celebrated collectors Schlim and Wagener. Although frequent, it had not been in cultivation until it was rediscovered in 1981. Vegetatively it is indistinguishable from most small species. The single, yellowish flower, however, has petals and a lip distinct from any other. The broad, unguiculate petals possess an oval cavity near the marginal angle above the base that was not noted in the original description. Reichenbach's sketch of the lip is accurate. The tricarinate lip is pandurate with the margins at the middle recurved, and with the apical portion dilated with minutely fringed and undulate margins.

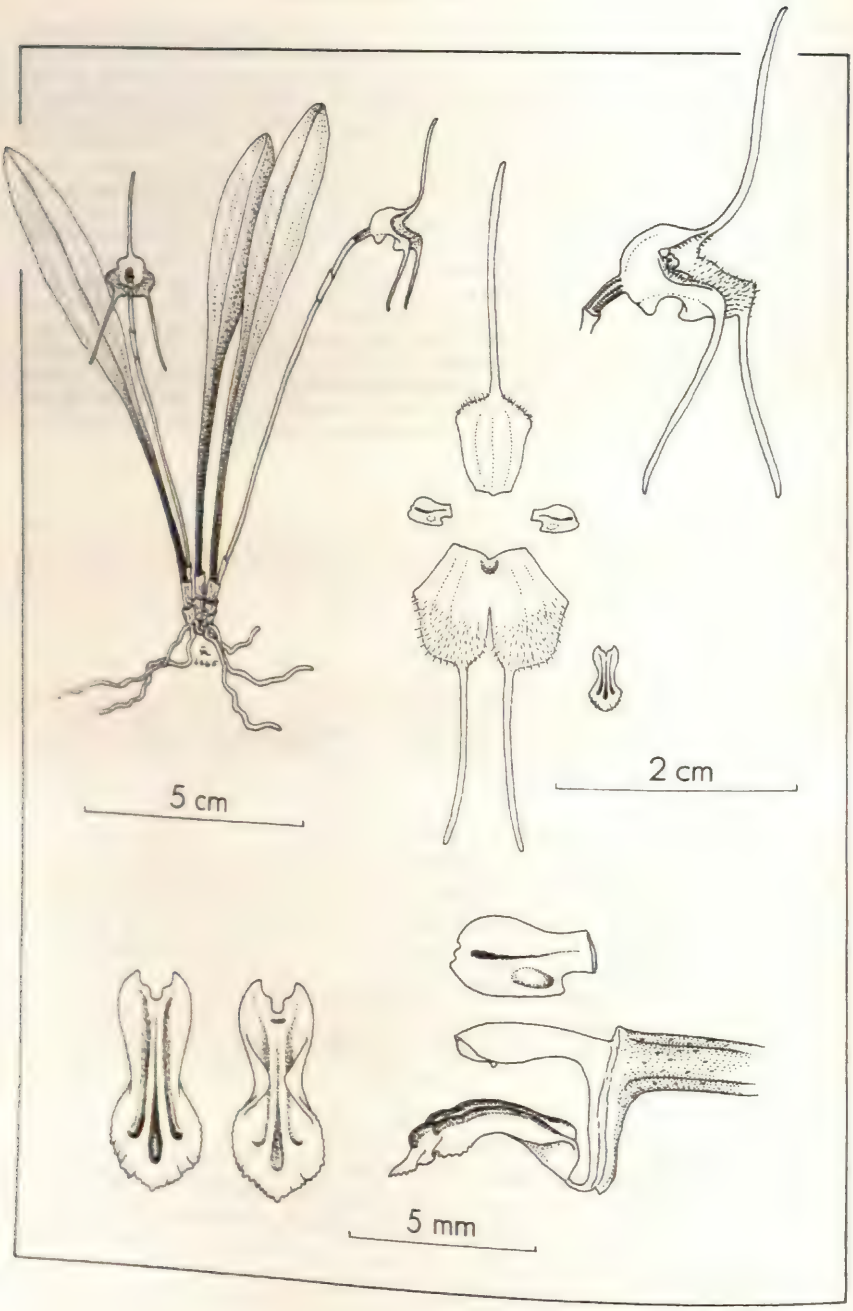


Plate 294. Masdevallia hians

Masdevallia hieroglyphica Rchb.f., Gard. Chron. n.s. 18: 230, 1882.

Ety.: From the Greek *hieroglyphikos*, "hieroglyphic," referring to the purple mottling of the sepals which resembles cryptic characters.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-3 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect to suberect, coriaceous, petiolate, 7-13 cm long including the petiole 2.5-5 cm long, the blade elliptical, obtuse, 2-4 cm wide, cuneate below into the slender petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle, 5-11 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 8-10 mm long; pedicel 10-12 mm long; ovary 5-6 mm long; **sepals** white to cream-colored, irregularly but bilaterally symmetrically mottled with dusky purple between purple veins, light yellow at the base, glabrous, the dorsal sepal oblong, 14-18 mm long, 8-9 mm wide, connate to the lateral sepals for 9-13 mm to form a gaping, sepaline cup, the free portion concave, triangular, obtuse, contracted into a slender, orange-brown, forwardly directed and decurved tail 5-6.5 cm long, with a dark purple, obtuse, callous appendage at the base of the tail, the lateral sepals transversely oblong, oblique, 15 mm long, 9 mm wide, connate 3-4 mm, the apices obtuse, obliquely contracted into deflexed tails similar to that of the dorsal sepal; **petals** yellow-white, oblong, obtuse, 4.5 mm long, 1.5 mm wide, the labellar margin below the middle with a thick, decurved, acute, uncinate process above the base; **lip** white, diffusely dotted with red-purple, flat, oblong, 5.5 mm long, 2.5 mm wide, the apex broadly truncate, the base subtruncate, hinged below; **column** white, marked with purple, semiterete, 4 mm long, with broadly angled, marginal wings below the middle, the foot stout, 1 mm long, with a short, incurved extension.

COLOMBIA: **Norte de Santander**, old department of Ocaña: Pamplona, 1882, imported by F. Sander & Co., collected by *Arnold 82* (Holotype: W); epiphytic in subparamo cloud forest, Páramo de Jurisdicciones, alt. 2300 m, 1 May 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7680* (SEL). **Santander**: cloud forest between Bucaramanga and Berlín, alt. 2600 m, 28 Apr. 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7628* (SEL); same area, alt. 2550 m, 7 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10197* (MO).

Masdevallia hieroglyphica is endemic in the high, cool forests of the Eastern Cordillera of Colombia where it is infrequently encountered. The purple-mottled and purple-striped sepaline cup is shallow with the lateral sepals transversely oblong and diverging with long, obliquely inserted tails. The dorsal sepal is concave with the long, slender tail curving downward. In the genus it is unique in possessing a dark purple, finlike callus at the base of the tail. A rounded, but not finlike callus is seen at the bases of the sepaline tails of *Dracula levii* Luer. The petals possess a large, uncinate process above the base; the lip is thin, flat and oblong; and the column is prominently winged on the lower margin.

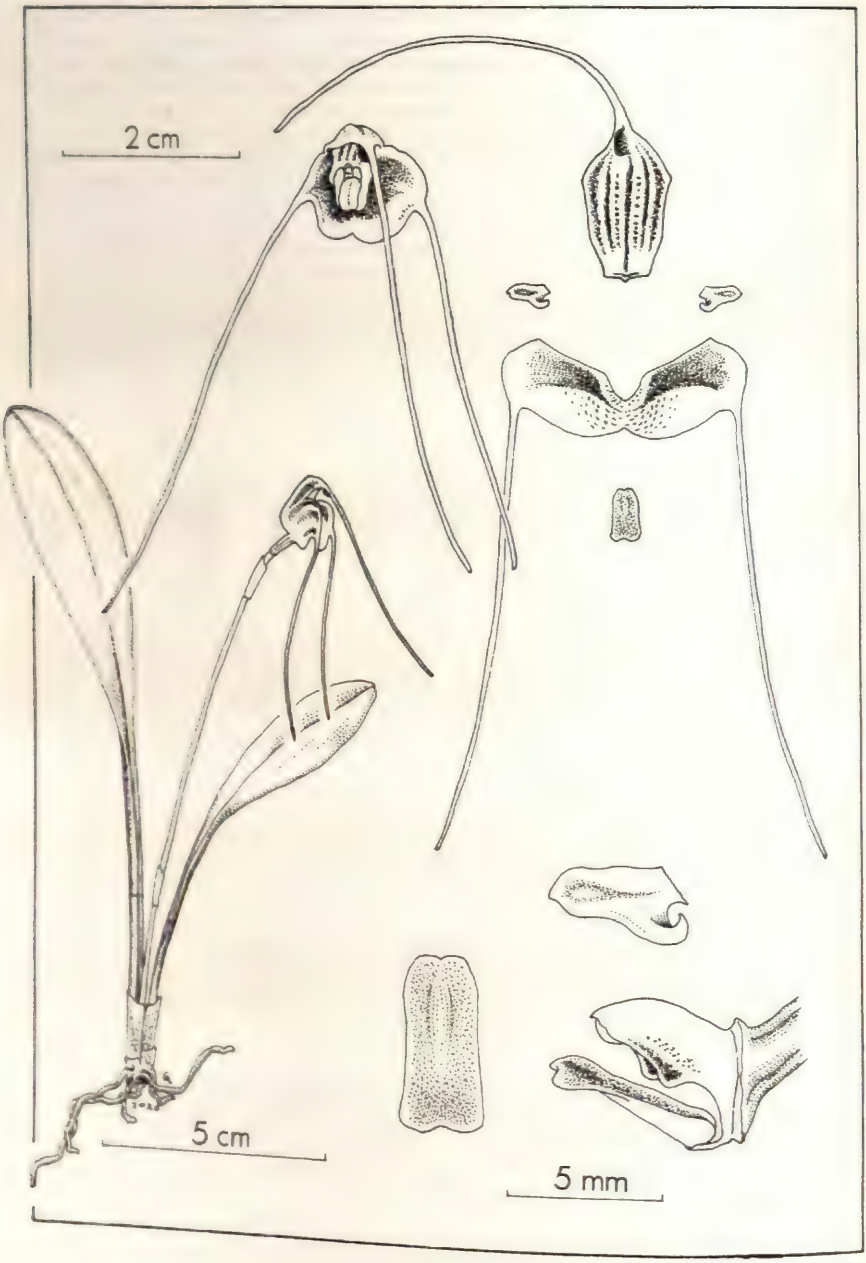


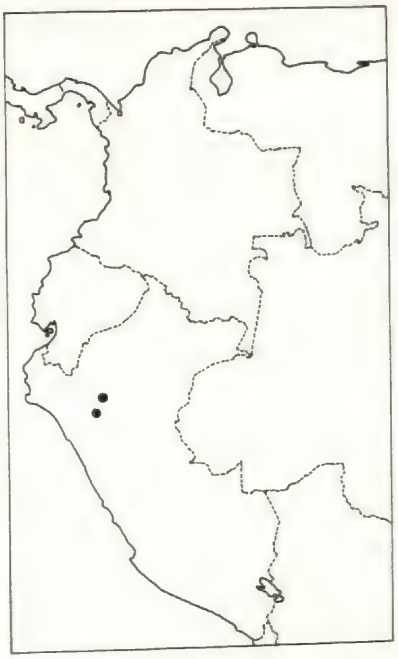
Plate 295. Masdevallia hieroglyphica

Masdevallia hymenantha Rchb.f., Bonplandia 3: 224, 1855.

Ety.: From the Greek *hymenanthos*, "a membranous flower," referring to the thin, translucent sepals of the dried specimens.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1.5-2.5 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect, coriaceous, 5-9 cm long including the petiole 2-3 cm long, the blade narrowly elliptical, obtuse, 1-1.5 cm wide, gradually narrowed below into the petiole. **Inflorescence** a solitary flower borne by an erect, slender peduncle 6-7 cm long, with a thin bract below the middle, from low on the ramicaul; floral bract tubular, 9-10 mm long; pedicel 17-18 mm long; ovary 6 mm long; **sepals** bright purple, glabrous, the dorsal sepal obovate, 20 mm long, 10 mm wide, connate to the lateral sepals for 11-12 mm to form a curved, cylindrical, sepaline tube, the free portion ovate, subacute, contracted into a greenish brown tail 14-15 mm long, the lateral sepals elliptical, 22 mm long, 9 mm wide, connate 10 mm, the acute apices contracted into greenish tails 9-10 mm long; **petals** white, oblong, 6 mm long, 2 mm wide, the truncate apex irregularly toothed, the labellar margin with a longitudinal callus, swollen below the middle, terminating in an acute, retrorse tooth; **lip** white, dotted with purple, oblong, 5.5 mm long, 2.5 mm wide, the subtruncate apex purple, revolute, with a low, marginal callus, the disc lightly sulcate, the subtruncate base hinged beneath; **column** white, semiterete, 5 mm long, the foot 2 mm long with a slender, incurved extension.

PERU: **Amazonas**: Chachapoyas, 1846, *A. Matthews s.n.* (Holotype: W; Isotypes: G, K); between Bagua and Chachapoyas, alt. 1800 m, collected by J. Meza, cultivated in Munich, Germany, by W. Königer, Dec. 1981, *C. Luer 6780* (SEL). **Cajamarca**: La Palma, northwest of Chirinos, 5 Feb. 1988, *A. Gentry, C. Díaz & C. Blaney 61194* (MO).



This pretty species was first found nearly a century and a half ago in the region around Chachapoyas in northern Peru by the collector Matthews, well-known for his many Andean discoveries. Reichenbach described the species from the dried material sent to him. No living material had been exported. Apparently it had not been seen again until it was exported by Jorge Meza in 1981, also from the region near Chachapoyas.

Apparently *M. hymenantha* is confined to the lush valleys of a few tributaries of the Río Marañon. Vegetatively, the habit is similar to that of many other species of the genus. The flower is borne near the top of the leaves. The shiny, bright purple sepals are smooth inside and out, and when dried, seem transparent, a quality noticed by Reichenbach. The petals have a pointed tooth at the base, and the lip is oblong with a dark purple callus at the tip.

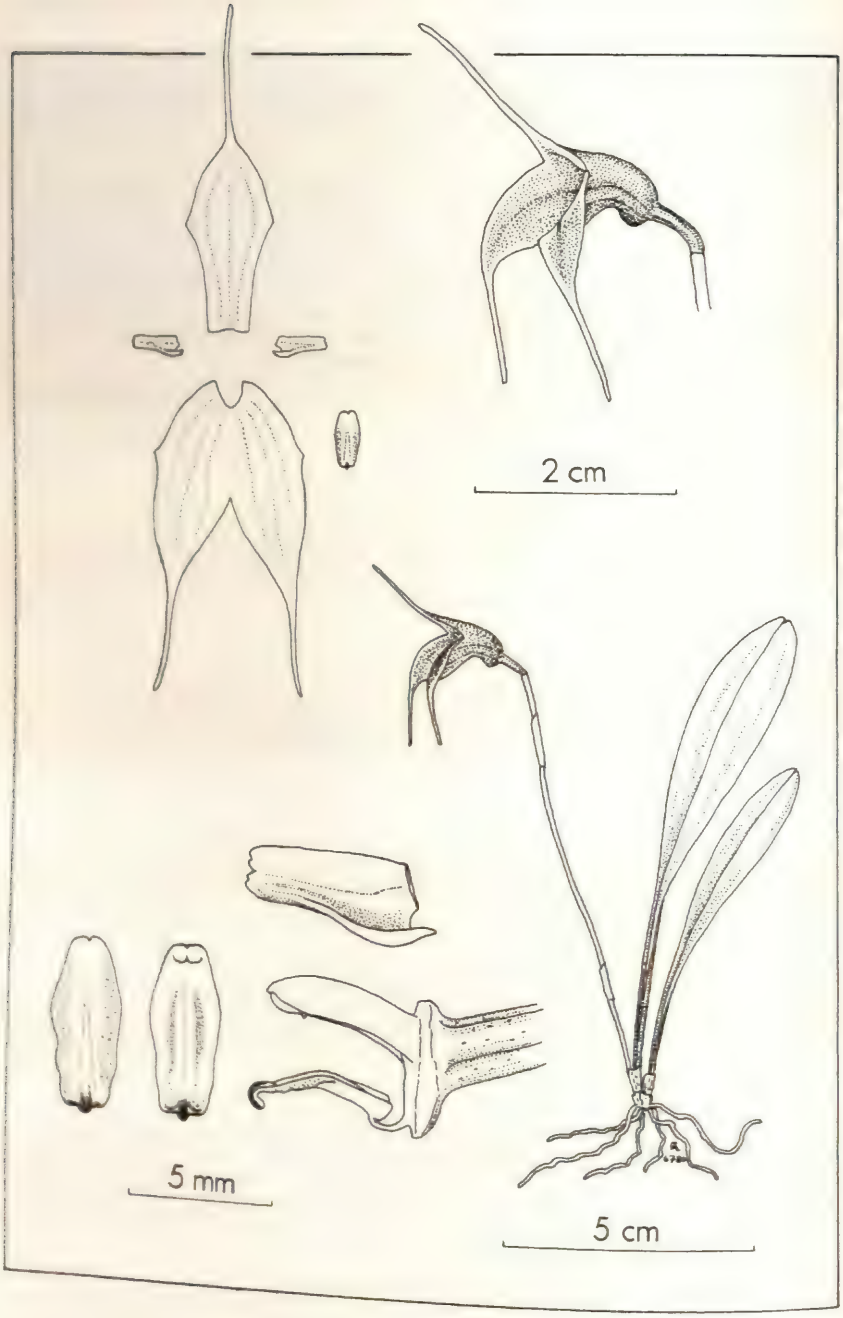


Plate 296. Masdevallia hymenantha

Masdevallia ionocharis Rchb.f., Gard. Chron. n.s. 3: 788, 1875.

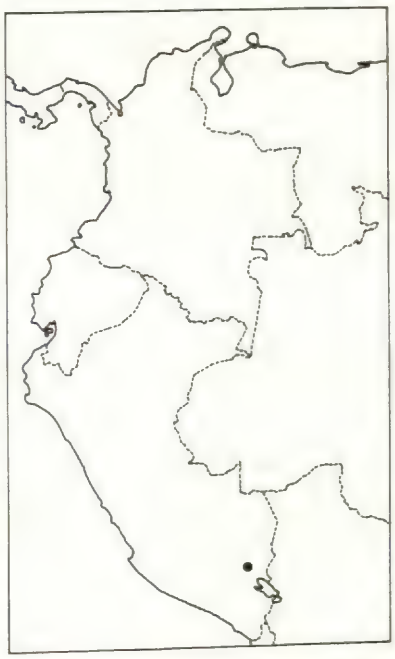
Ety.: From the Greek *ion*, "a violet" and *charis*, "a grace," in allusion to the pretty, graceful, violet-suffused flowers.

Syn.: *Masdevallia ionocharis* var. *approviata* hort. ex Woolward, Genus *Masdevallia*, 1896.

Ety.: Probably from the Latin *approbiatus*, "approved," referring to the quality of the flower.

Plant medium in size, lithophytic to terrestrial, caespitose; roots coarse. Ramicauls erect, slender, 1.5-4 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 5-11 cm long including the petiole 2-4 cm long, the blade elliptical, subacute to obtuse, 1-1.8 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single flower produced by a slender, erect peduncle 6-10 cm long, with a bract near the base, from the low on the ramicaul; floral bract tubular, 10-12 mm long; pedicel 15-25 mm long; ovary 5-7 mm long; **sepals** glabrous to sparsely microscopically pubescent within, white, suffused with rose-purple from above the middle to near the base, the dorsal sepal obovate, 14-18 mm long, 8-10 mm wide, connate to the lateral sepals for 9-12 mm to form a broad sepaline tube, the apex broadly obtuse, abruptly contracted into a forwardly directed, slender, greenish tail 11-13 mm long, the lateral sepals densely dotted with purple within below the middle, elliptical-obovate, oblique, 13-15 mm long, 9-10 mm wide, connate 8-10 mm to form a broad mentum, the apices obtuse to rounded, contracted into tails 9-10 mm long; **petals** white, triangular, 7 mm long, 3 mm wide above the base, the apex acute to shallowly notched, the labellar margin with a longitudinal callus ending in a broad, triangular tooth at the base; **lip** white, diffusely dotted with red-purple, oblong, arcuate, 8-9.5 mm long, 5 mm wide, the apex obtuse with a central, orange-brown callus, the disc broadly sulcate between a low pair of converging calli, the base subcordate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 4 mm long, spotted with purple, with a long, incurved extension.

PERU: **Puno**: Prov. of Caravaya, valley of Sandia, alt. 3000 m, collected in 1874, flowered by M. Veitch in the Royal Exotic Nursery, Aug. 1875, *W. Davis 383* (Holotype: W, Isotype: AMES); same area, terrestrial on rocky slopes between Sandia and Cuyo-Cuyo, alt. 3300 m, collected in Aug. 1982, by W. & H. Königer & M. Arias, cultivated in Munich, Germany, *W. Königer K-66a* (K, M, SEL, USM, W, Herb. H. Königer); same collection, cultivated 9 Aug. 1984, *C. Luer 10402* (MO); same collection, cultivated at Colomborquídeas, 15 May 1993, *C. Luer 16713* (MO).



Masdevallia ionocharis was first discovered in a remote area of southeastern Peru by Walter Davis who was collecting plants for the firm of Messrs. Veitch. In spite of the difficult task of transporting living plants by horseback over the Andes, they were successfully imported by Messrs. Veitch where they flowered in the Royal Exotic Nursery at Chelsea, England, the following year in August 1875. Flowering specimens were dutifully forwarded to Professor Reichenbach in Hamburg. Some of Veitch's plants survived for at least 20 years for Florence Woolward was able to reproduce a faithful painting for her monograph. Eventually all the plants went the way of all living things in captivity, and the species was not seen again for nearly a hundred years. The species was rediscovered by Willibald and Helga Königer, and Manuel Arias in 1982, and plants were brought into cultivation after a century's absence.

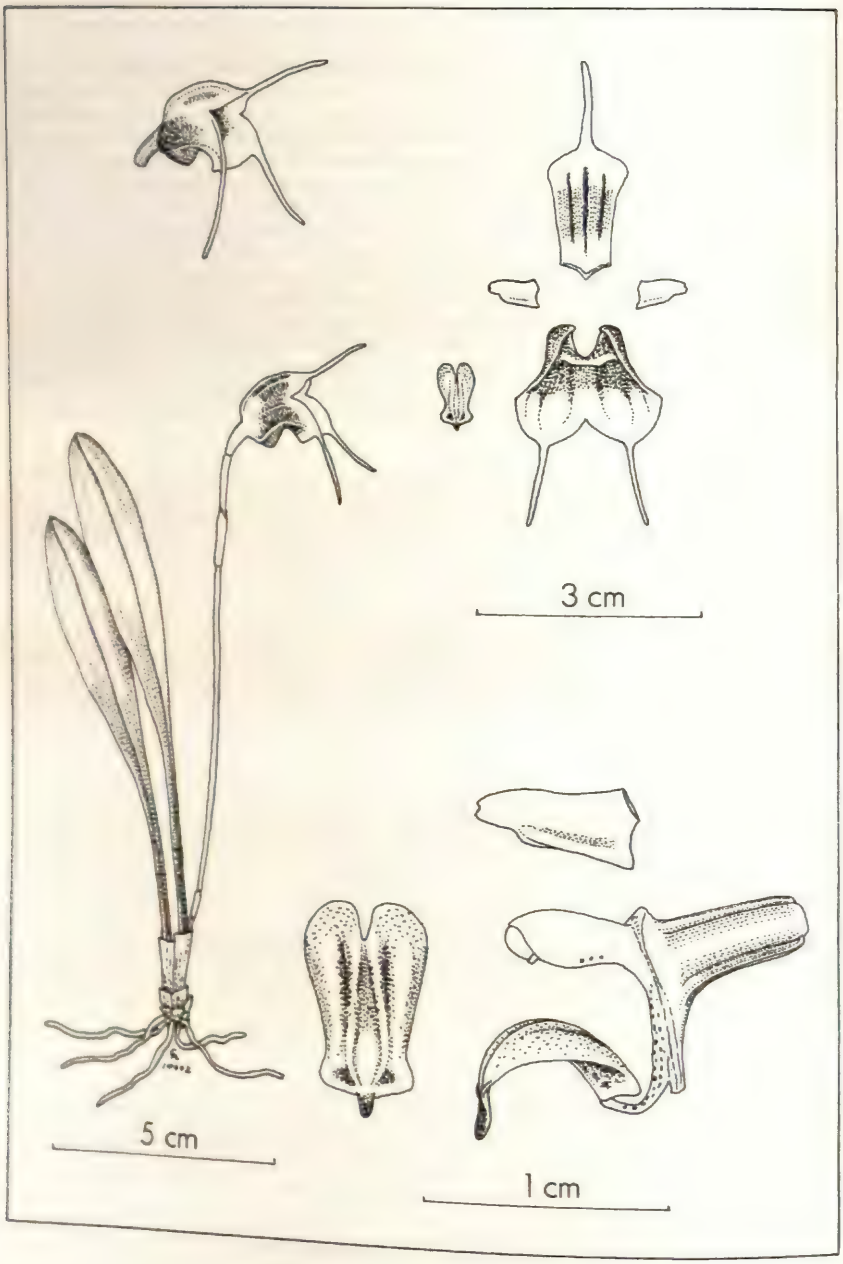


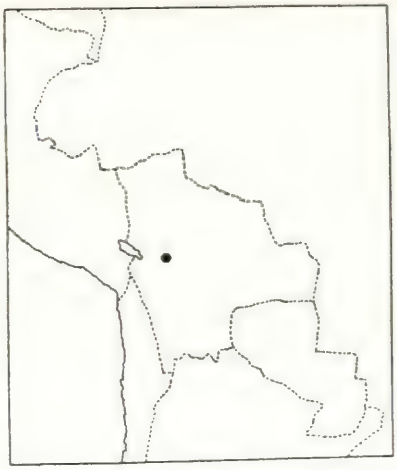
Plate 297. Masdevallia ionocharis

Masdevallia ishikoi Luer, Lindleyana 10: 117, 1995.

Ety.: Named in honor of Toshiyuki Ishiko of Japan, co-discoverer of this species.

Plant medium in size, caespitose; roots coarse. Ramicauls erect, stout, 1.5-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 6-9.5 cm long including the petiole 2-3 cm long, the blade narrowly obovate, obtuse, 1.5-2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single flower produced by a slender, erect peduncle 1.5-2 cm long, with a bract at the base, from low on the ramicaul; floral bract tubular, 5 mm long; pedicel 7 mm long; ovary 6 mm long; **sepals** fleshy, the dorsal sepal yellow, spotted with dark purple toward the base, broadly ovate, carinate, concave, arcuate-cucullate, with minutely ciliate-erose margins, 11 mm long, 11 mm wide expanded, connate to the lateral sepals for 4 mm to form a sepaline cup, the apex obtuse, contracted into a deflexed, yellowish, clavate tail 7 mm long, 2.25 mm wide, the lateral sepals rose, dotted with purple, pubescent, connate 12 mm into a broadly expanded, oblong-obovate lamina, 20 mm long, 20 mm wide, the apices obtuse, contracted into thick, obtuse apicula; **petals** white, oblong, 6.5 mm long, 2 mm wide, the apex obtuse, oblique, the labellar margin with a longitudinal callus ending in a thick, rounded, retrorse process at the base; **lip** light rose-brown, ovate, 5 mm long, 2.75 mm wide, the apex acute, deflexed, the disc smooth, the base rounded, hinged beneath; **column** mottled with purple, semiterete, 5 mm long, the foot 4 mm long with the incurved extension.

BOLIVIA: **La Paz**: Murillo, valley of the Río Zongo, alt. ca. 1500 m, collected 9 Oct. 1994 by D. D'Alessandro and T. Ishiko, cultivated at Beaver, PA, 10 Jan. 1995, *C. Luer 17337* (Holotype: MO).



This species is apparently endemic in the Río Zongo valley of north-central Bolivia. Although the tailless lateral sepals strongly suggest section *Aphanes*, this species is a member of section *Masdevallia* subsection *Masdevallia* because of the short, erect, single-flowered peduncle, a caudate dorsal sepal, petals with a thick, retrorse process at the base and a simple lip. The colorful, fleshy sepals form a short tube with the coarsely pubescent lateral sepals that are deeply connate into a broad synsepal spread beneath the deflexed, clavate tail of the dorsal sepal. The lip is ovate with the acute apex deflexed.

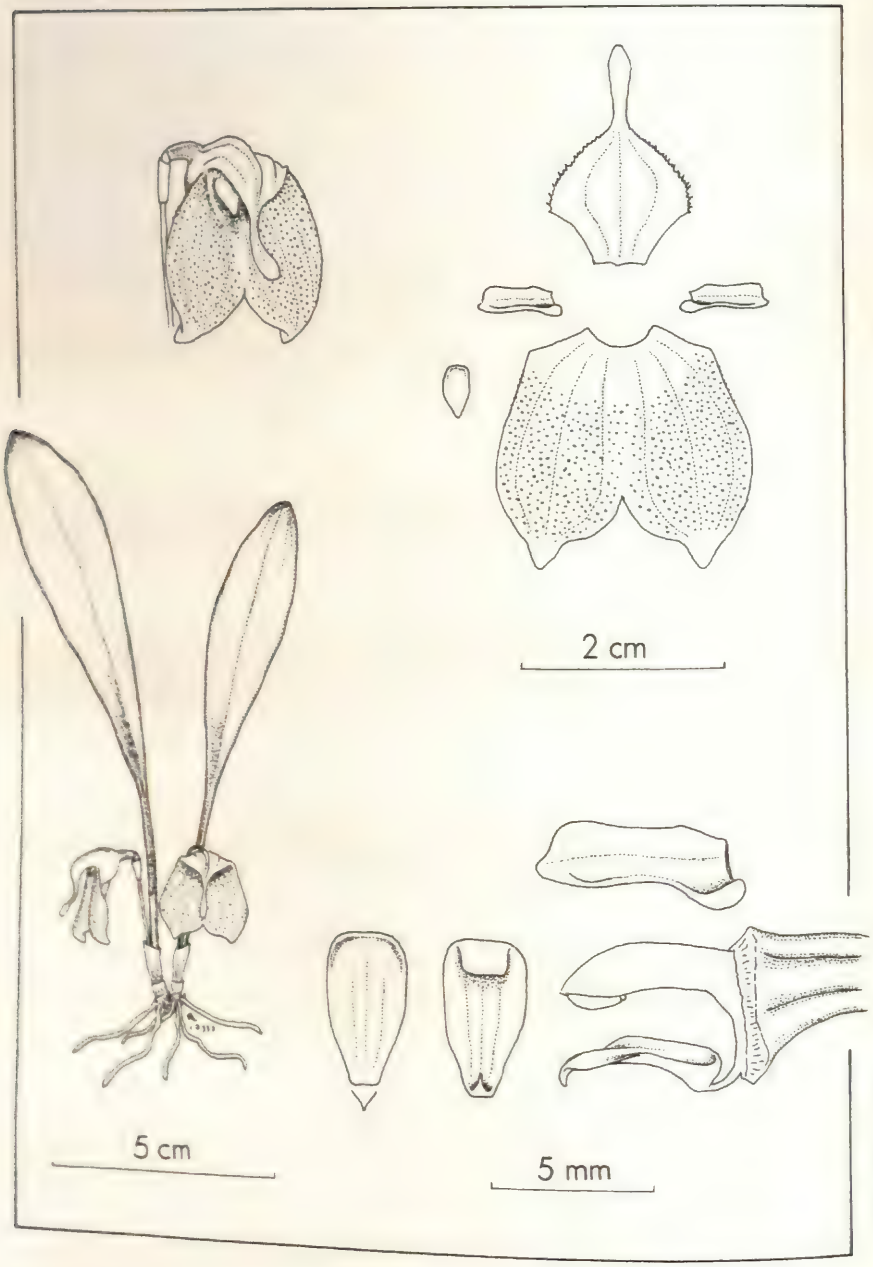


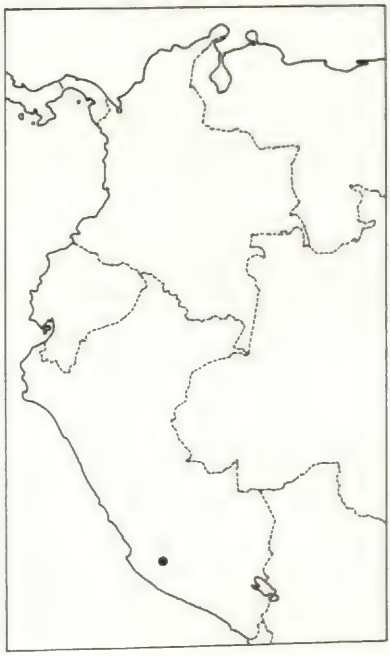
Plate 298. Masdevallia ishikoi

Masdevallia juan-albertoi Luer & Arias, Monogr. Syst. Bot. Missouri Bot. Gard. 79: 122, 2000.

Ety.: Named for Juan Alberto Arias, son of Manuel Arias of Lima, Peru.

Plant large, epiphytic, caespitose; roots fleshy. Ramicauls stout, erect, 5-7 cm long, enclosed by a loose, tubular sheath and 2 others at the base. **Leaf** erect, coriaceous, long-petiolate, 13-14.5 cm long including the petiole 4-4.5 cm long, the blade elliptical, subacute, 2-3 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by a peduncle 10-14 cm long, with a sheath above the base, from low on the ramicaul; floral bract 12 mm long; pedicel 18-19 mm long; ovary 7 mm long; **sepals** tan, diffusely dotted and suffused with brown, glabrous externally, shortly pubescent within above the middle, the dorsal sepal obovate, concave, 26 mm long, 23 mm wide, 3-veined, connate 14 mm into a gaping sepaline tube, the apex obtuse to rounded, contracted into a slender tail 3.5 cm long, the lateral sepals oblong, connate 12 mm into a broad synsepal, 25 mm long, 34 mm wide, 6-veined, with a deep mentum below the column-foot, the apices obtuse, contracted into slender tails 3 cm long; **petals** cartilaginous, more or less oblong, obliquely obtuse at the apex, the labellar margin callous, ending in a thick, obtuse, retrorse process, 12 mm long, 5 mm wide, 1-veined; **lip** suboblong, 14 mm long expanded, 6.5 mm wide, the apex broadly truncate with the acute tip acutely recurved, the disc featureless, the base truncate, thickened beneath and loosely hinged to the extension of the column-foot; **column** stout, 9 mm long, the foot equally long with an incurved extension, the anther and stigma ventral.

PERU: **Ayacucho**: Huanta, Chuyas, alt. 2300 m, collected by Silvano Flores, cultivated in Lima, Oct. 1999, by *M. Arias s.n.* (Holotype: MO), C. Luer illustr. 19360.



This rare species, apparently endemic in central Peru, is another related to the variable *M. laevis*, which had been identified in *Thesaurus Masdevalliarum*-15 as *M. affinis*, one of its synonyms.

The large leaf of *M. juan-albertoi* is long-petiolate, and the flower is borne near the top of the leaves. It is a comparatively large flower distinguished by a broad, brown-flecked sepaline tube with a prominent mentum. The slender tails are slightly longer than the blades; the petals are large with a thick, retrorse process at the base; and the lip is also large with a constriction below the acutely recurved apex.

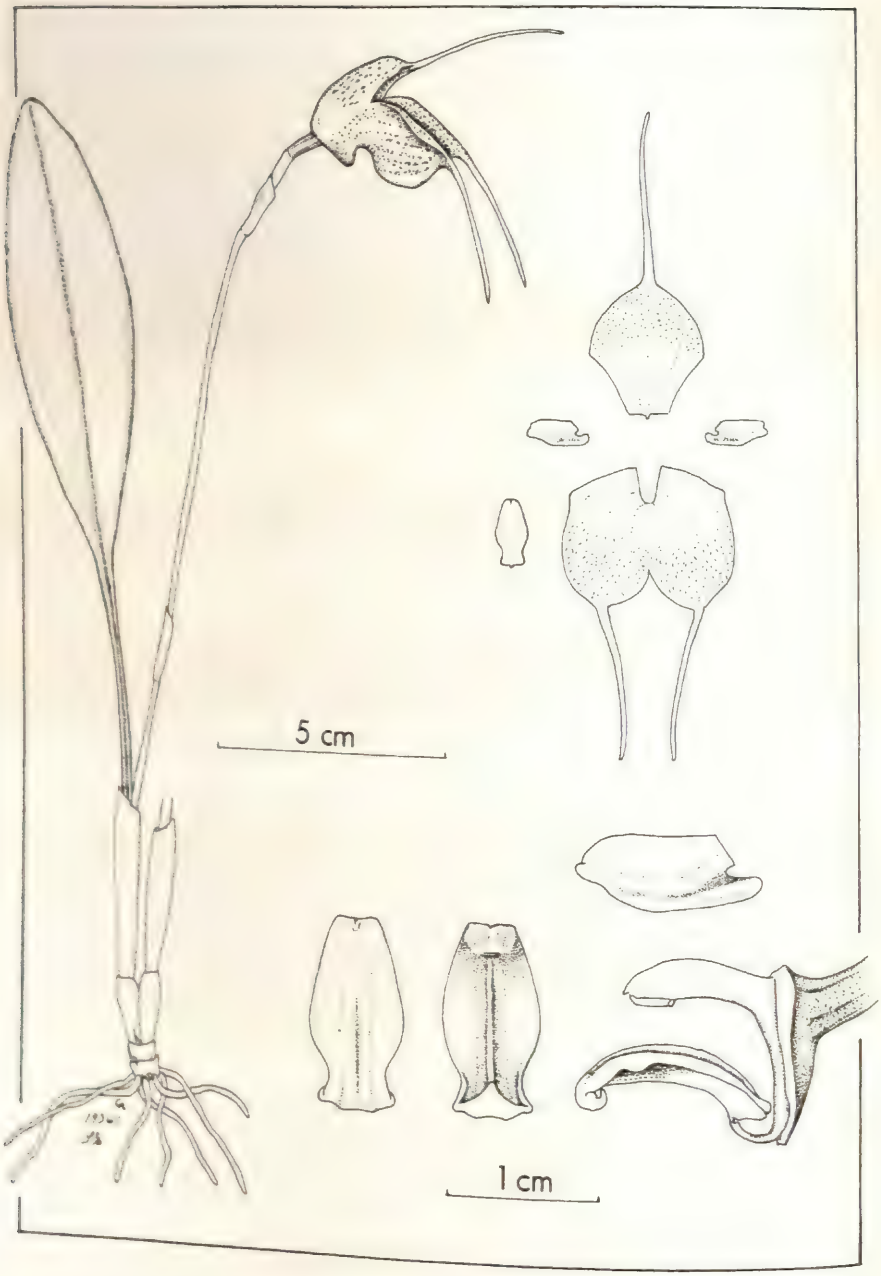


Plate 299. Masdevallia juan-albertoi

Masdevallia karineae Nauray ex Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 79: 123, 2000.

Ety.: Named for Karine, daughter of Abel Rodriguez, of Cuzco, Peru.

Plant medium in size, epiphytic, caespitose; roots stout. Ramicauls slender, erect, 2.5-3.5 cm long, enclosed by a loose, tubular sheath and another at the base. **Leaf** erect, coriaceous, long-petiolate, 12.5 cm long including the petiole ca. 3 cm long, the blade narrowly elliptical, subacute, 2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a solitary flower borne by a peduncle 5.5 cm long, with a sheath above the base, from low on the ramicaul; floral bract 8 mm long; pedicel 14 mm long; ovary 5 mm long, green, spotted with purple; **sepals** rosy white, intensely spotted with purple below the middle within, glabrous externally with a large orange area externally below the middle, with purple hairs near the margin, either spiculate in rosettes or clubbed, the dorsal sepal obovate, 13 mm long, 8 mm wide, 3-veined, the apex round, contracted into an erect, green, purple-spotted tail 16-18 mm long, connate to the lateral sepals for 7 mm, the lateral sepals oblong-ovate, oblique, obtuse, 14 mm long, 8 mm wide, 3-veined, connate 7 mm, the apices contracted into reflexed tails similar to that of the dorsal sepal; **petals** white, cartilaginous, more or less oblong, minutely sublobulate at the truncate apex, the labellar margin with a longitudinal callous terminating in a retrorse, uncinate process at the base, 6.5 mm long, 2.5-4 mm wide, 1-veined; **lip** oblong, 7.5 mm long, 4 mm wide, the apex obtuse but acutely recurved, the disc shallowly sulcate, the base truncate, thickened beneath, hinged to the column-foot; **column** stout, 6 mm long, the foot equally long with an incurved extension, the anther and stigma ventral.

PERU: **Cuzco**: Urubamba, Wiñay Wayna, alt. 2700 m, without date, *W. Nauray 408* (Holotype: CUZ); same area, collected I. Rolando, and A. Alfieri, Oct. 1999, flowered in cultivation by A. Alfieri in Wilmington, DE, 19 Jan. 2000, *C. Luer 19311* (Paratype: MO).

This species was first collected by William Nauray and Abel Rodriquez on Wiñay Wayna peak opposite Machu Picchu. Growing both terrestrially and epiphytically it is locally abundant. Although the flower is small for subsection *Masdevallia*, it is intensely colored. It is borne on a peduncle about as long as the long petiole of the leaf. The sepals are rosy white and connate about midway into a broad sepaline tube with a broadly rounded mentum. A large, orange area is present below the middle externally. Within, the sepals are pubescent, and intensely and irregularly spotted with purple below the middle. Above the middle and near the margins, four kinds of purple hairs are present. Some are protruding, glandular cells; some are erect, slender hairs; sometimes the hairs are arranged in rosettes; and sometimes the hairs are markedly clubbed. An uncinate callus is present at the base of the petals. The lip is simply oblong with an acutely recurved apex.

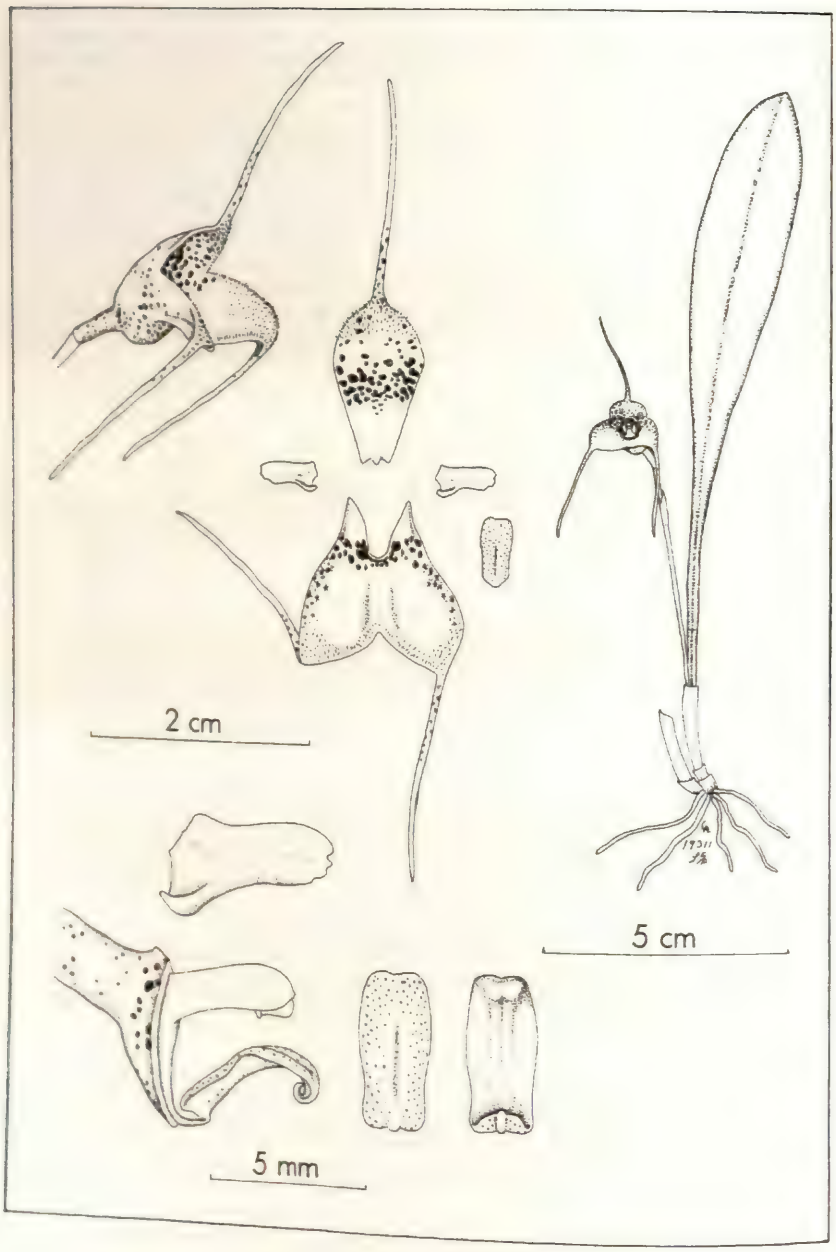


Plate 300. Masdevallia karineae

Masdevallia laevis Lindl., Ann. Mag. Nat. Hist. Ser. 1, 15: 257, 1845.

Ety.: From the Latin *laevis*, "smooth," referring to the smooth apex of the lip as compared to the rough tip of the lip of *M. coriacea*.

Syn. *Masdevallia affinis* Lindl., Orch. Linden. 5, 1846, subsp. *affinis*.
Ety.: From the Latin *affinis*, "similar to," referring to the similarity to *M. laevis*.

Syn.: *Masdevallia lepida* Rchb.f., Bonplandia 3: 69, 1855.
Ety.: From the Latin *lepidus*, "pretty," referring to the quality of the flowers.

Syn.: *Masdevallia pantherina* Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 454, 1899.
Ety.: From the Latin *pantherinus*, "like a panther," referring to the many spots on the sepals.

Syn.: *Masdevallia petiolaris* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 80, 1920.
Ety.: From the Latin *petiolaris*, "petiolar," referring to the long-petiolate leaves.

Syn.: *Masdevallia gomeziana* Lehm. & Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 434, 1921.
Ety.: Named for Dr. José Gómez, possibly one of the collectors, at the suggestion of Lehmann.

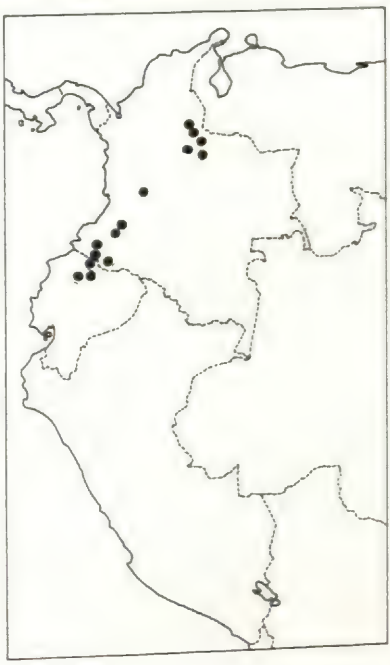
Syn.: *Masdevallia maculigera* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 27: 24, 1924.
Ety.: From the Latin *maculiger*, "spot-bearer," referring to the maculate flowers.

Syn.: *Masdevallia chlorotica* Kraenzl., Bull. Misc. Inform. 107, 1925.
Ety.: From the Greek *chloros*, "yellow-green," referring to the color of the flower.

Syn.: *Masdevallia confusa* Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 161, 1925, *nomen novum*.
Ety.: From the Latin *confusus*, "confused," referring to Prof. Reichenbach whom Kränzlin thought had erred by giving a second species (in this case, this species) the same epithet as another, *M. velutina*. Reichenbach's "second" *M. velutina* is actually a repeat publication of his original *M. velutina*, a species of *Dracula*. It was Kränzlin who was confused in thinking that the "second" description was this species. He gave it a *nomen novum* and cited a new "type."

Syn.: *Masdevallia affinis* subsp. *petiolaris* (Schltr.) Luer, Lindleyana 3: 17, 1988.
Syn.: *Masdevallia affinis* subsp. *maculigera* (Schltr.) Luer, Lindleyana 3: 17, 1988.

Plant small to large, epiphytic caespitose; roots slender. Ramicauls erect, slender, often blackish, 2-9 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 6-21 cm long including a petiole 2-9 cm long, the blade elliptical, obtuse to subacute, 1.5-4.5 cm wide, cuneate below into the slender petiole. **Inflorescence** 1-4 simultaneous, solitary, showy flowers borne by slender, erect peduncles 5-13 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular 7-15 mm long; pedicel 10-25 mm long; ovary 5-9 mm long; **sepals** white to rose, more or less spotted with purple, occasionally yellowish, spotted with brown, pubescent within, the dorsal sepal 12-18 mm long, 7-14 mm wide, connate 7-11 mm into a broad, funnel-shaped tube, the free portion broadly triangular, subacute to obtuse, contracted into a slender, yellowish tail 2.5-4 cm long, the lateral sepals ovate, oblique, 14-20 mm long, 7-13 mm wide, connate 4-7 mm over an acute, transverse fold to form at the base a deep mentum with the column-foot, the obtuse apices contracted into slender tails 2-3.5 cm long; **petals** white, veined or spotted with purple, oblong, 6-8 mm long, 2.5-3.25 mm wide, the apex sublobulate, the labellar margin with a longitudinal callus, ending in a free, retrorse, acute to narrowly obtuse, more or less incurved process above the base; **lip** tan or yellowish, dotted and suffused with purple-brown, oblong, 6.5-10 mm long, 3-5 mm wide, the broadly rounded apex revolute, with a midline callus, the disc shallowly sulcate, the base subcordate and shortly cleft, hinged beneath; **column** white, marked with purple, semiterete, 5.5-7 mm long, the foot 3-5 mm long with a long, incurved extension.



COLOMBIA: **Cauca**: on trees, Río Blanco, near Popayán, *K.Th. Hartweg s.n.* (Holotype: K; Isotype: W); Tatamá, alt. 3200 m, 8 Nov. 1882, *F.C. Lehmann 2204* (G); Páramo de Guanacas above Popayán, alt. 3300-3500 m, *F.C. Lehmann 6752* (holotype of *M.*

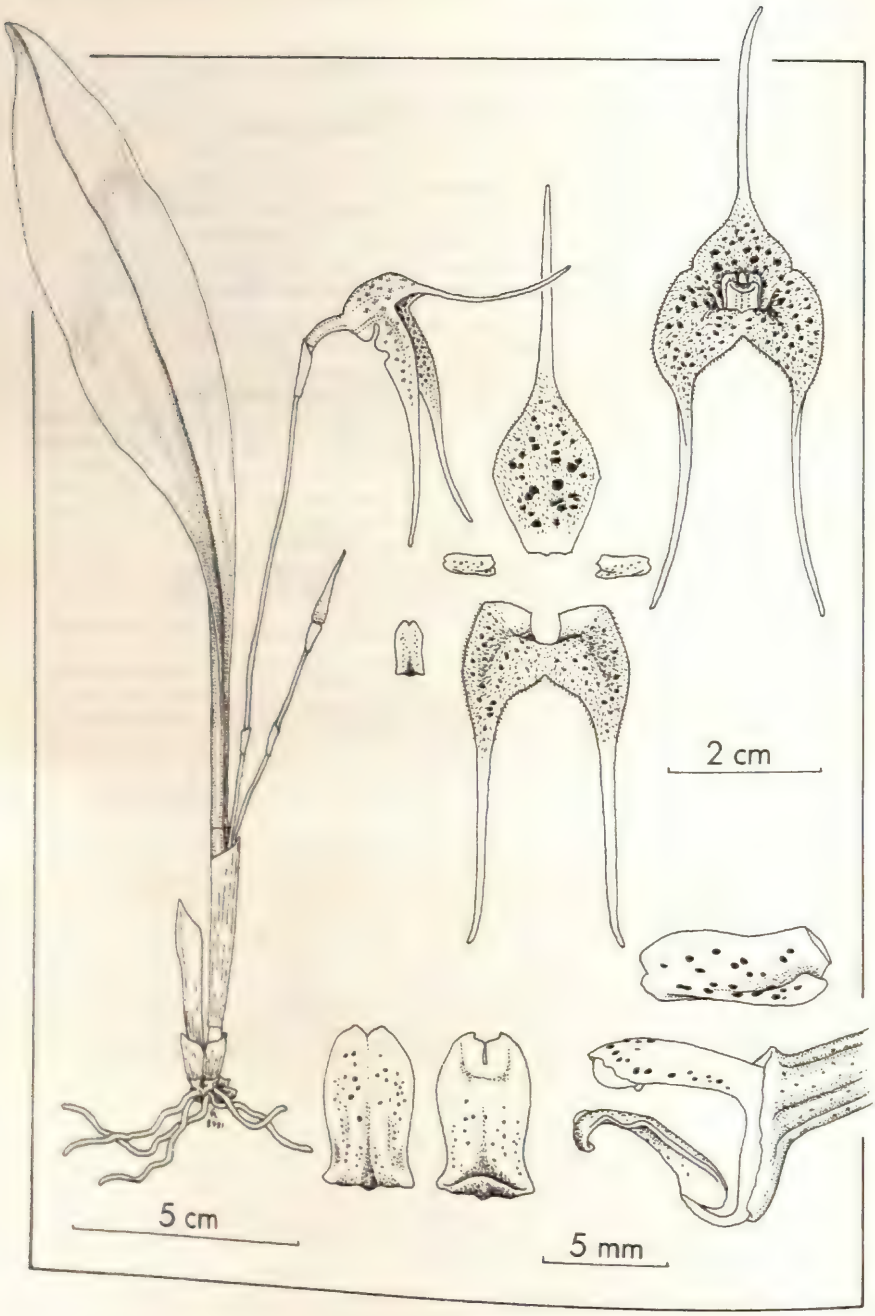


Plate 301. Masdevallia laevis

pantherina: K; isotypes: AMES, G, NY, US, W); epiphytic and terrestrial in damp forests on both slopes of the Páramo de Moras, alt. 2900-3400 m, 3 Mar. 1883, *F.C. Lehmann 2700* (holotype of *M. gomeziana*: K; isotypes: AMES, BM, G, LE, MO, NY, W); Páramo de las Delicias, 3300-3600 m, *F.C. Lehmann 8506* (holotype of *M. chlorotica*: K; isotypes: AMES, G, HBG, NY, W); Páramo de las Delicias, *F.C. Lehmann B.T.180* (AMES); Páramo de las Delicias, alt. 3380 m, 17 Nov. 1982, *C. Luer & R. Escobar 8481* (AMES, JAUM, SEL); without locality, *M. Madero s.n.* (holotype of *M. petiolaris* destroyed at B). **Norte de Santander**: Alto de San Francisco, alt. 8,000 ft., *H. Wagener 575* (holotype of *M. lepida*: W; isotype: K); old prov. of Ocaña, Páramo de San Pedro, alt. 8,000-10,000 ft., 1845-52, *L. Schlim 731* (BR, G, K, MO, P, W), C. Luer illustr. 19267; old prov. of Pamplona, July 1844, *Purdie s.n.* (K); Perico, alt. 2600 m, May 1851, *L. Schlim 1017* (K); Toledo, epiphytic in cloud forest, Alto de Mefué, alt. 2600 m, 12 May 1982, *C. Luer, R. Escobar & D. Portillo 7798* (AMES, MO, SEL); same locality, 12 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10292* (MO). **Arauca**: Sierra Nevada del Cocuy, Monte El Tovo, alt. 3000 m, 10 Apr. 1973, *A.M. Cleef 10148* (AAU, COL); same area, alt. 2900 m, 30 May 1982, collected by D. Portillo & J. Suarez, *C. Luer & R. Escobar 8000* (JAUM, SEL). **Tolima**: forests between Pan de Azucar and Boquerón, Mt. Tolima, alt. 9,000 to 12,000 ft., Jan. 1843, *J. Linden 1273* (holotype of *M. affinis*: K; isotypes: BR, G, W); Mt. Tolima, 1844, *J. Goudot s.n.* (P); Mt. Tolima, alt. 9,000 ft., Aug. 1917, *Mr. Tracey 239* (K); Mt. Tolima, El Rancho La Cueva, alt. 3400 m, collected by G. Ruiz S., 9 June 1982, *C. Luer 8347* (SEL). **Nariño**: cordillera east of Pasto, alt. 3800 m, 21 Feb. 1891, *F.C. Lehmann 319* (G); "near Pasto," 27 July 1956, *A. Barclay & R.E. Schultes 228* (AMES); epiphytic in forest above Laguna near Pasto, alt. 3000 m, 11 Feb. 1880, *F.C. Lehmann 522* (holotype of *M. confusa*: W; isotype: G); same area, alt. 3100 m, 29 July 1978, *C. Luer, J. Luer & R. Escobar 3080* (SEL); same area, alt. 3150 m, 27 Jan. 1987, *C. Luer, J. Luer & C.H. Dodson 12550* (MO); Páramo del Tábano between Pasto and El Encano, alt. 3200 m, 11 Jan. 1941, *J. Cuatrecasas 11916* (AMES, COL, F, S, US); between Pasto and Mocoa, alt. 3000 m, Sept. 1922, *W. Hopp 168* (holotype of *M. maculigera* destroyed at B); Páramo del Tábano between Pasto and La Cocha, alt. 3100 m, 27 Jan. 1987, *C. Luer, J. Luer & C.H. Dodson 12551* (Neotype of *M. maculigera* here designated: MO); same area, 21 Jan. 1979, *C. Luer & J. Luer 3772* (SEL); Volcán Galeras, alt. 3200 m, 21 Jan. 1979, *C. Luer & J. Luer 3742* (SEL); epiphytic in cloud forest between Ipiales and La Victoria, alt. 3200 m, 4 Nov. 1979, *C. Luer, J. Luer & A. Hirtz 4668* (K, SEL). **Putumayo**: epiphytic in subparamo scrub forest between La Cocha and Sibundoy, alt. 3000 m, 26 Jan. 1987, *C. Luer, J. Luer, R. Escobar, C. H. Dodson & O. Benavides 12527* (K, MO).

ECUADOR: **Carchi**: scrub cloud forest east of Tulcán, alt. 3200 m, 23 Feb. 1978, *C. Luer, J. Luer & A. Hirtz 2749* (SEL); scrub cloud forest above San Gabriel, alt. 3400 m, 8 Nov. 1982, *C. Luer & R. Escobar 8302* (SEL). **Sucumbíos**: Playón de San Francisco, alt. 3600-3800 m, 29 Dec. 1980, *J. Jaramillo & F. Coello 3901* (AAU); El Mirador, alt. 3600 m, Feb. 1991, *A. Hirtz 5140* (MO); epiphytic between Tulcán and El Carmelo, alt. 3200 m, 6 Apr. 1985, *C. Luer, J. Luer & A. Hirtz 11125* (MO). **Imbabura**: above Mariano Acosta, near Neuva America, alt. 3300 m, 12 Mar. 1996, *S. Dalström, S. Ingram & K. Ingram-Ferrell 2109* (MO).

This species is variable in its wide distribution through all three cordilleras of Colombia into northern Ecuador. It was first described from a collection by Hartweg above Popayán in the Western Cordillera, where it is still frequent today in several subpáramo forests. Lindley described it in 1845 beside the warty-lipped *M. coriacea* along with three other species (*M. meleagris, M. racemosa*, and *M. rosea*). He described the sepals as pubescent within, and the lip as oblong with the tip round and smooth, in contrast to the thick, verrucose lip of *M. coriacea*.

The following year, Lindley described *M. affinis* from a collection by Linden from Mt. Tolima in the Central Cordillera of Colombia, noting that it was very similar to *M. laevis*, but differing with the sepals pubescent within. Obviously, he overlooked the fact that he described the sepals of *M. laevis* also as pubescent within. No doubt, he thought he had implied that the sepals were smooth, perhaps as well as the lip. Numerous living specimens from above Popayán as well as a living specimen from Mt. Tolima have been examined and illustrated, and found to be variations of what appear to be the same species.

In 1855, Reichenbach described *M. lepida* from a collection by Wagener in the Eastern Cordillera. I find no specific feature to distinguish it from *M. laevis*. A collection by Schlim (*Schlim 731*) from Ocaña, also in the Eastern Cordillera, was attributed to *M. ensata* by Reichenbach, but I am certain that this collection is another of *M. laevis*. Although closely allied, *M. ensata* is distinguished by a cylin-

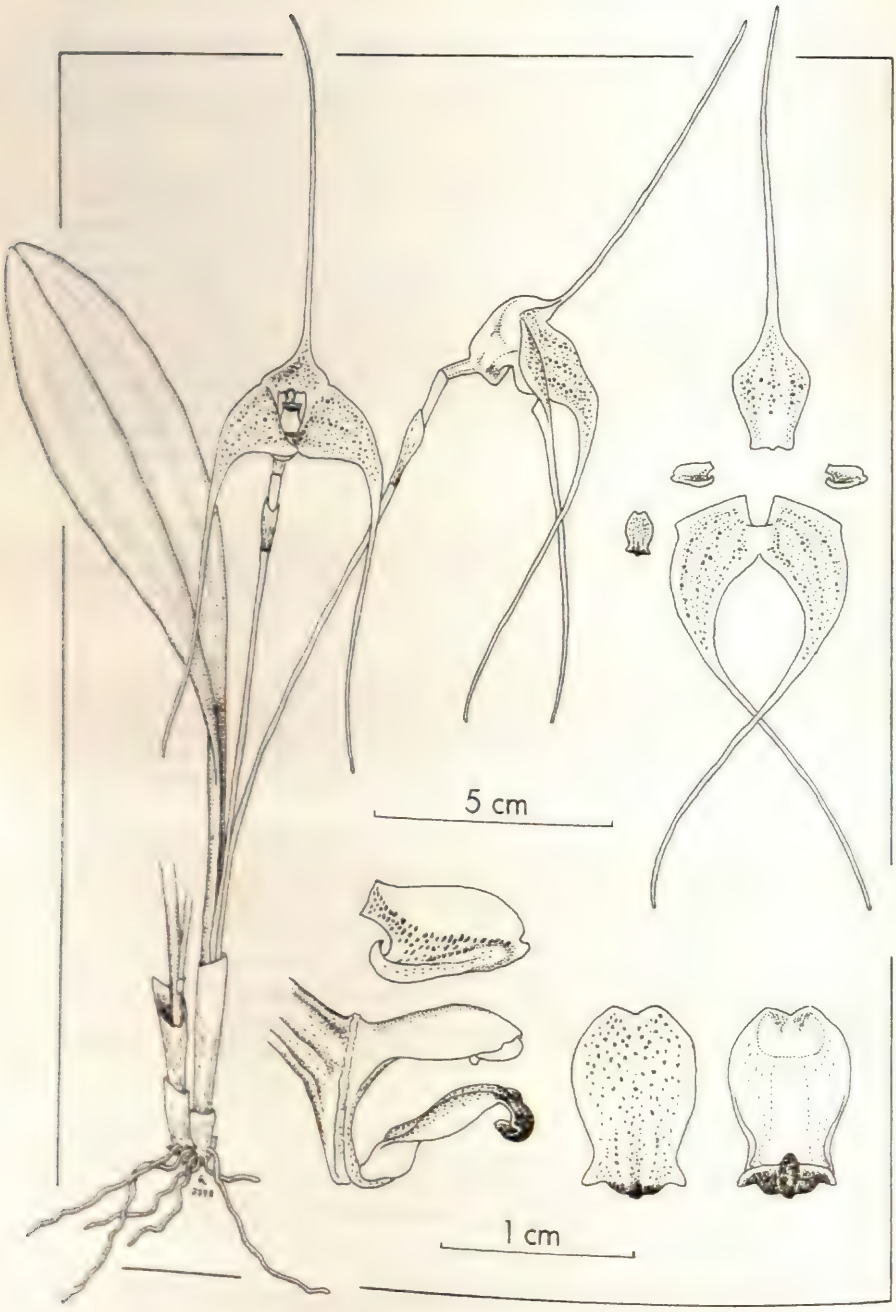


Plate 302. Masdevallia laevis
(M. lepida)

drical, red- or purple-striped flower, while *M. laevis* is distinguished by a funnel-shaped, variously spotted flower.

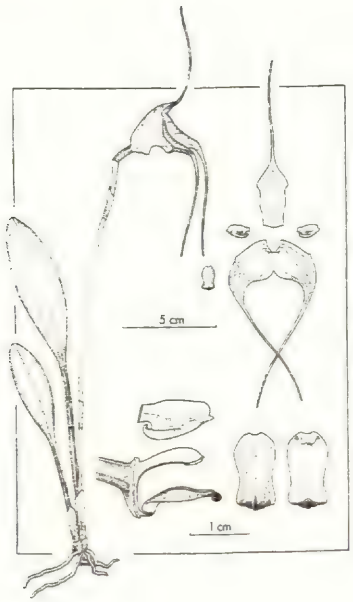
At the other extreme of its distribution in southernmost Colombia and bordering Ecuador, *M. laevis* is abundant and variable where it has acquired several additional specific epithets, some of which have been treated as subspecies. The most distinct variations are illustrated on the following pages.

Masdevallia laevis is a frequent epiphyte of moss-laden trees of cool, wet cloud forests at altitudes over 3000 meters above sea level. In some areas it is the most predominant epiphyte. Vegetatively and florally variable through its wide range, some populations are larger and more colorful than others. The species is characterized by the relatively large, long-petiolate leaves, and relatively large, long-tailed flowers. The sepals, densely short-pubescent within, vary from white to pink to yellow, and spotted or dotted with purple or brown. The size of the spots is variable and sometimes the spots are almost lacking.

The distinct variation described as *M. maculigera* is distinguished by the smaller habit, usually with two or three or occasionally four single flowers produced simultaneously from the same node. The white, purple-spotted flowers are barely microscopically pubescent within. They are smaller and are borne no higher than the leaves. Except for their smaller size, the petals and lip of the two concepts are similar.

The distinct variation described as *M. petiolaris* is distinguished by the larger habit with a long, distinct petiole. Usually only one flower is produced at a time. The comparatively large, white, purple-spotted flower is densely pubescent within, and is borne by a peduncle as long as the leaves. The petals and lip of these concepts are similar. In some areas, this variation grows intermixed with the previous variation.

In *Thesaurus Masdevalliarum*-14, *M. alismifolia* was erroneously identified as *M. laevis*.



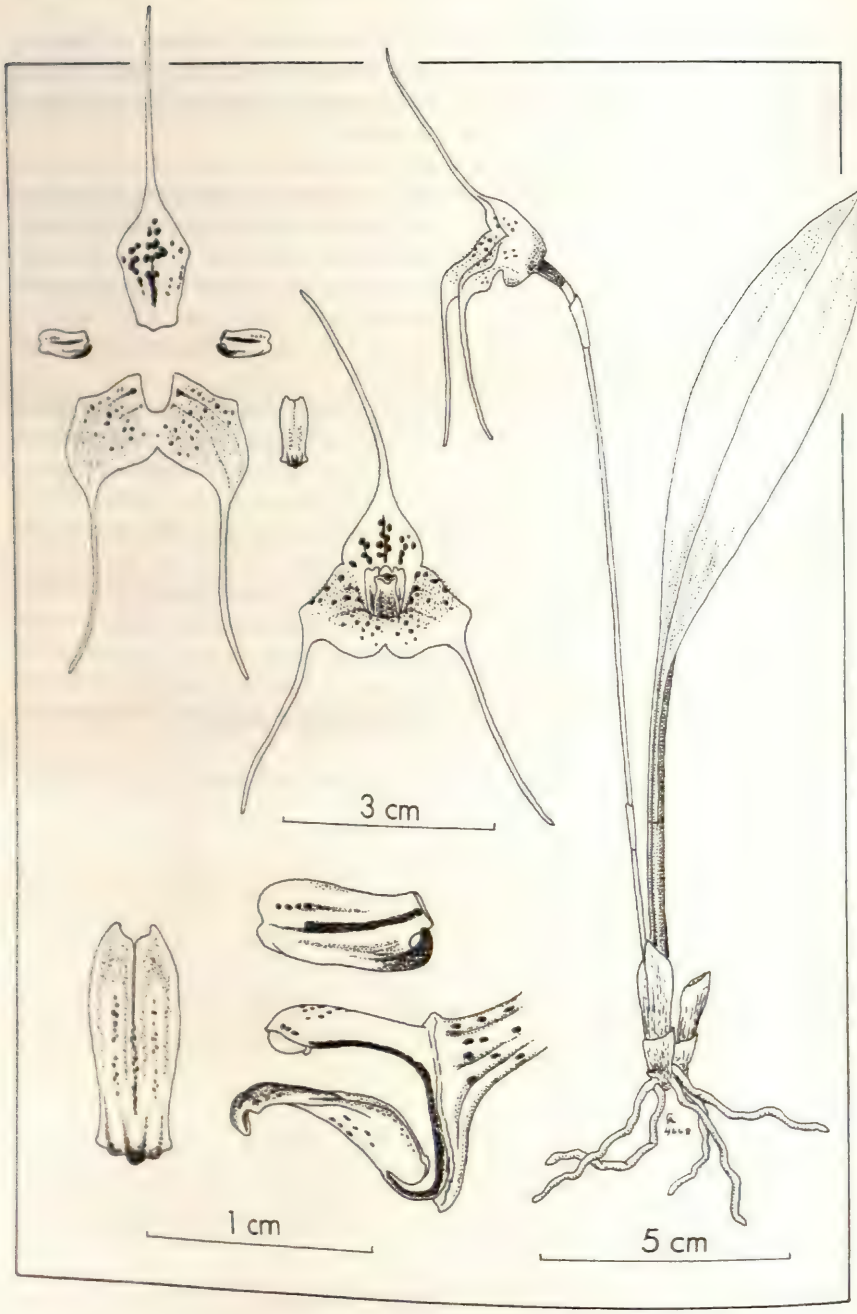


Plate 303. Masdevallia laevis
(M. pantherina)

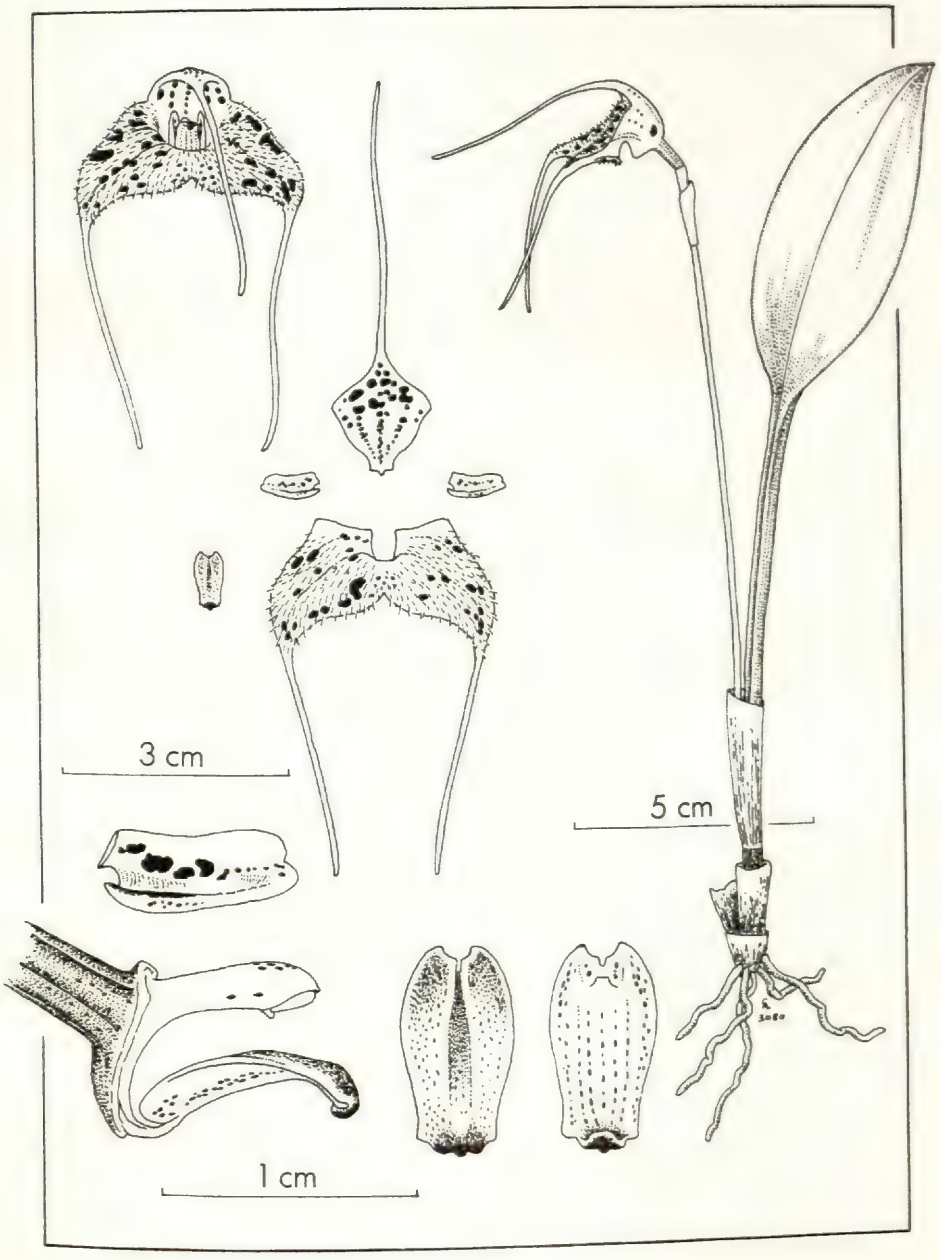


Plate 304. Masdevallia laevis
(*subsp.* petiolaris)

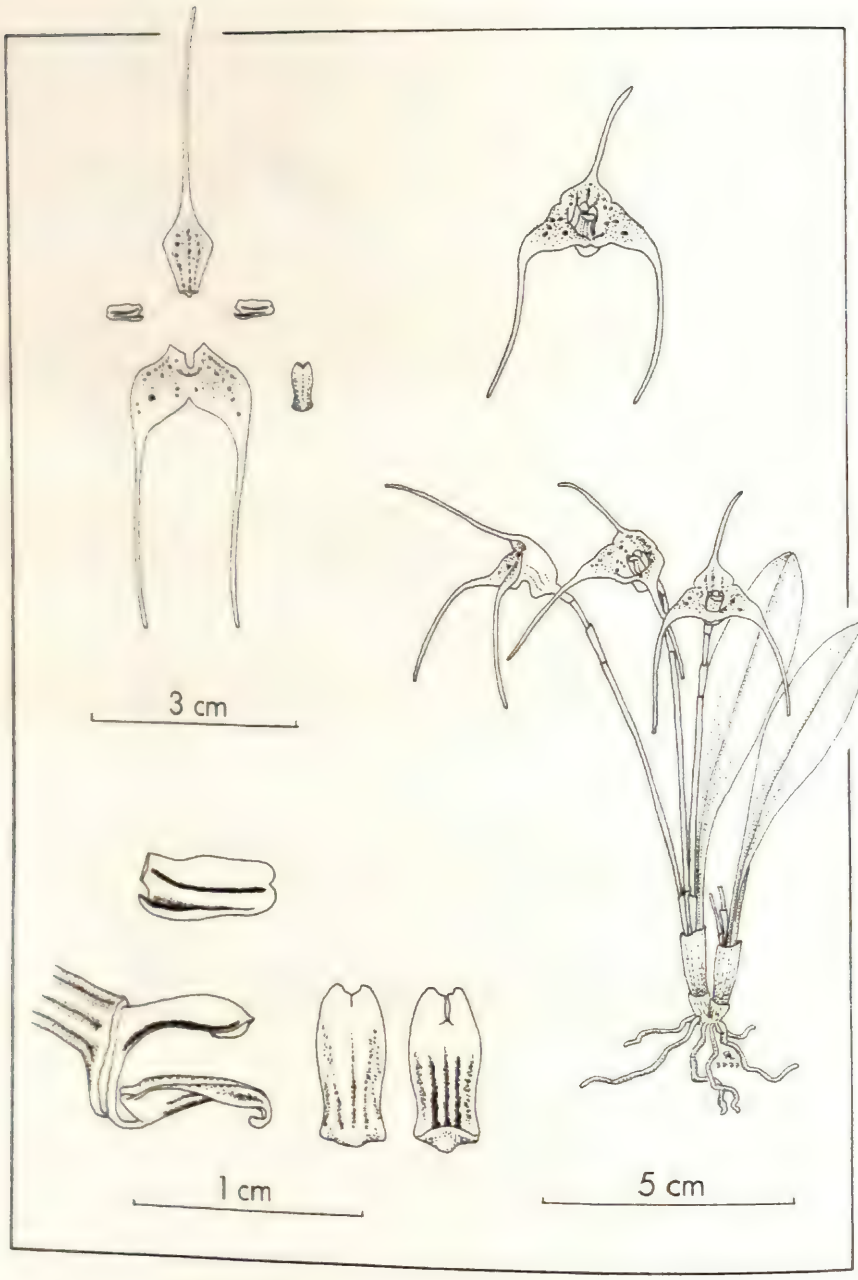


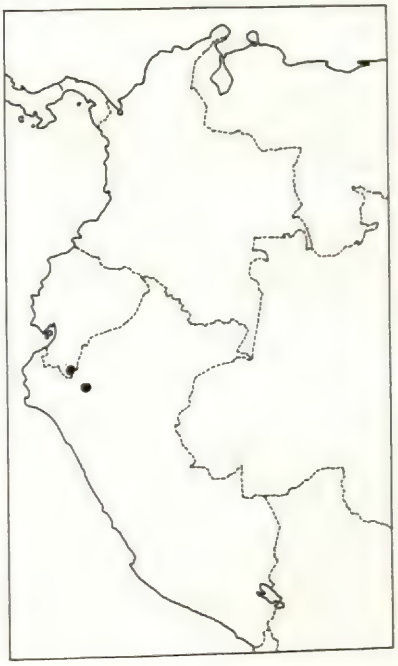
Plate 305. Masdevallia laevis
(*subsp.* maculigera)

Masdevallia lamprotyria Königer, Die Orchidee 31: 178, 1980; emend. 36: 87, 1985.

Ety.: From the Greek *lamprotyrius*, "a shiny purple," referring to the color of the flower.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-2.5 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, 6-11 cm long including the petiole 1-3 cm long, the blade narrowly elliptical, acute, 0.5-0.7 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a single, showy flower borne by a slender, erect peduncle 8-9 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 8 mm long; pedicel white, 14-16 mm long; ovary 5 mm long; **sepals** bright shiny purple, glabrous, the dorsal sepal obovate, 16 mm long, 6 mm wide, connate to the lateral sepals for 7 mm to form a cylindrical, sepaline tube, the free portion ovate with the acute apex contracted into a slender tail 3 cm long, the lateral sepals elliptical, oblique, 22 mm long, 7 mm wide, connate to each other for 6 mm, the apices acute, contracted into tails similar to that of the dorsal sepal; **petals** white, oblong, 7 mm long, 2 mm wide, the obtuse apex obscurely bilobed, the labellar margin with a longitudinal carina ending in an obtuse angle above the base; **lip** white, suffused with orange at the apex, oblong, 6.25 mm long, 2.3 mm wide, slightly narrowed below the subtruncate apex with a small marginal callus, the base truncate, hinged beneath, the disc faintly channeled between a pair of low, longitudinal calli; **column** white, semiterete, 5 mm long, the foot 3 mm long, with an incurved extension 1 mm long.

PERU: **Amazonas**: epiphytic in cloud forest between Chachapoyas and Pomacochas, alt. 2000 m, Aug. 1978, *B. Würstle, W. Königer, H. Königer, J. Meza et al. W-4a* (Holotype: SEL; clonotypes: K, M, USM, W, Herb. H. Königer); same collection, cultivated by W. Königer in Munich, Germany, Oct. 1986, *C. Luer 4860* (MO).
ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest above Zumba, alt. 1800 m, collected by S. Dalström, 25 Jan. 1989, cultivated by Borås at Björn Gillbrand, Sweden, Dec. 1989, *S. Dalström 1311* (MO).



This species occurs locally in Amazonian Peru and adjacent, southernmost Ecuador. The habit with slender leaves and a single-flowered peduncle nearly as long is indistinguishable from many others in the section *Masdevallia*. The small, delicate flower is distinguished by the shiny, purple surface of the sepals. The slender tails are slightly longer than the blades, the blades of the lateral sepals being noticeably longer than the blade of the dorsal sepal. They are connate about half their length into a sepaline tube. A low callus courses along the labellar margin of the petals and forms only an obtuse angle above the base. The oblong lip is slightly constricted near the subtruncate apex.

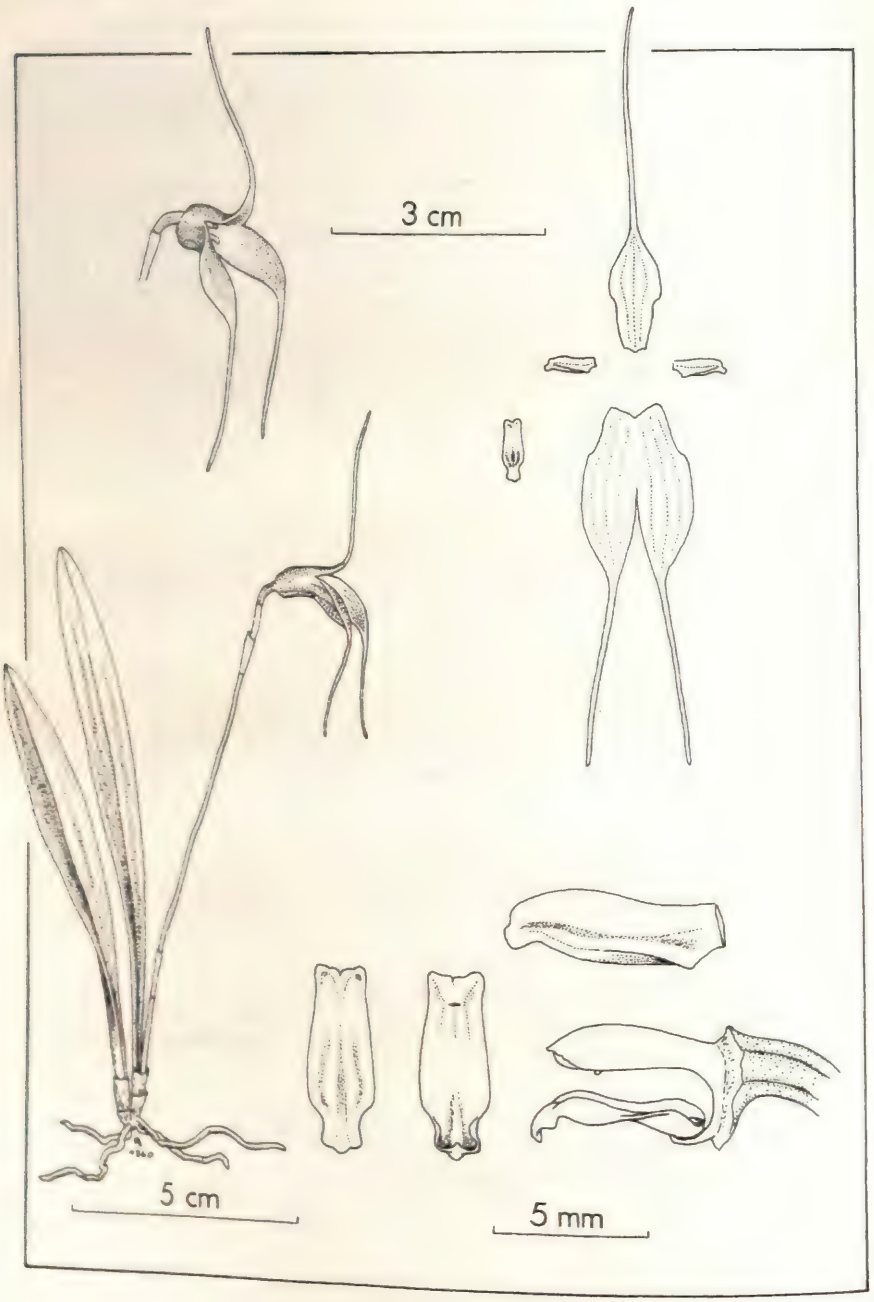


Plate 306. Masdevallia lamprotyria

Masdevallia leonardoi Luer, sp. nov.

Ety.: Named for Sr. Leonardo Bustamante of Loja, Ecuador, who collected this species.

Species haec *M. pumilae* Poepp. & Endl. affinis, sed floribus luteo-aurantiacis, sepalorum lateralium caudis decurvis, et petalorum callo quam lamina longiore differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 5-10 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, 4-5 cm long including a slender petiole ca. 1 cm long, the blade narrowly elliptical, subacute to obtuse, 0.8-1 cm wide, gradually narrowed below into the petiole. **Inflorescence** a single flower borne by an erect, slender peduncle 1.5-2.5 cm long, with a thin sheath near the base, from low on the ramicaul; floral bract tubular, thin, 8 mm long; pedicel 6 mm long; ovary 3-4 mm long; **sepals** yellow, orange toward the base, glabrous externally, cellular-pubescent within, with cellular-erose edges, the dorsal sepal obovate, 11 mm long, 6 mm wide, connate to the lateral sepals for 7 mm to form a cylindrical tube, the free portion triangular with the obtuse apex contracted into a slender tail 27 mm long, the lateral sepals narrowly obovate, 13 mm long, connate 7 mm, 11 mm wide together, the free portions acute, contracted into decurved tails 28 mm long, similar to that of the dorsal sepal; **petals** yellow, oblong, 5 mm long, 1.6 mm wide, the apex obtuse, minutely obscurely lobed, the lower margin with a longitudinal callus ending in an acute, retrorse process extending beyond the base; **lip** yellow, oblong, 5 mm long, 2 mm wide, the apex obtuse with decurved sides, shallowly sulcate, the base subcordate, hinged beneath; **column** yellow, semiterete, 4 mm long, the foot 2 mm long, with a short, incurved extension.

ECUADOR: **Zamora-Chinchipe**: beyond the pass between Loja and Zamora, alt. 1800 m, collected and cultivated by Leonardo Bustamante, flowered in cultivation 20 Feb. 2001, *C. Luer 19517* (Holotype: MO).

This small species is superficially similar to the frequent and widely distributed *M. pumila*, but *M. leonardoi* is apparently confined to a small area in southeastern Ecuador. Instead of white, the flowers are yellow and suffused with orange toward the base of the cylindrical, sepaline tube. The tails of the lateral sepals decurve, while those of *M. pumila* commonly curve upward. The most distinguishing feature is the callus of the petals, the end of which extends as a point behind the base. The callus of *M. pumila* terminates between the middle and basal thirds.

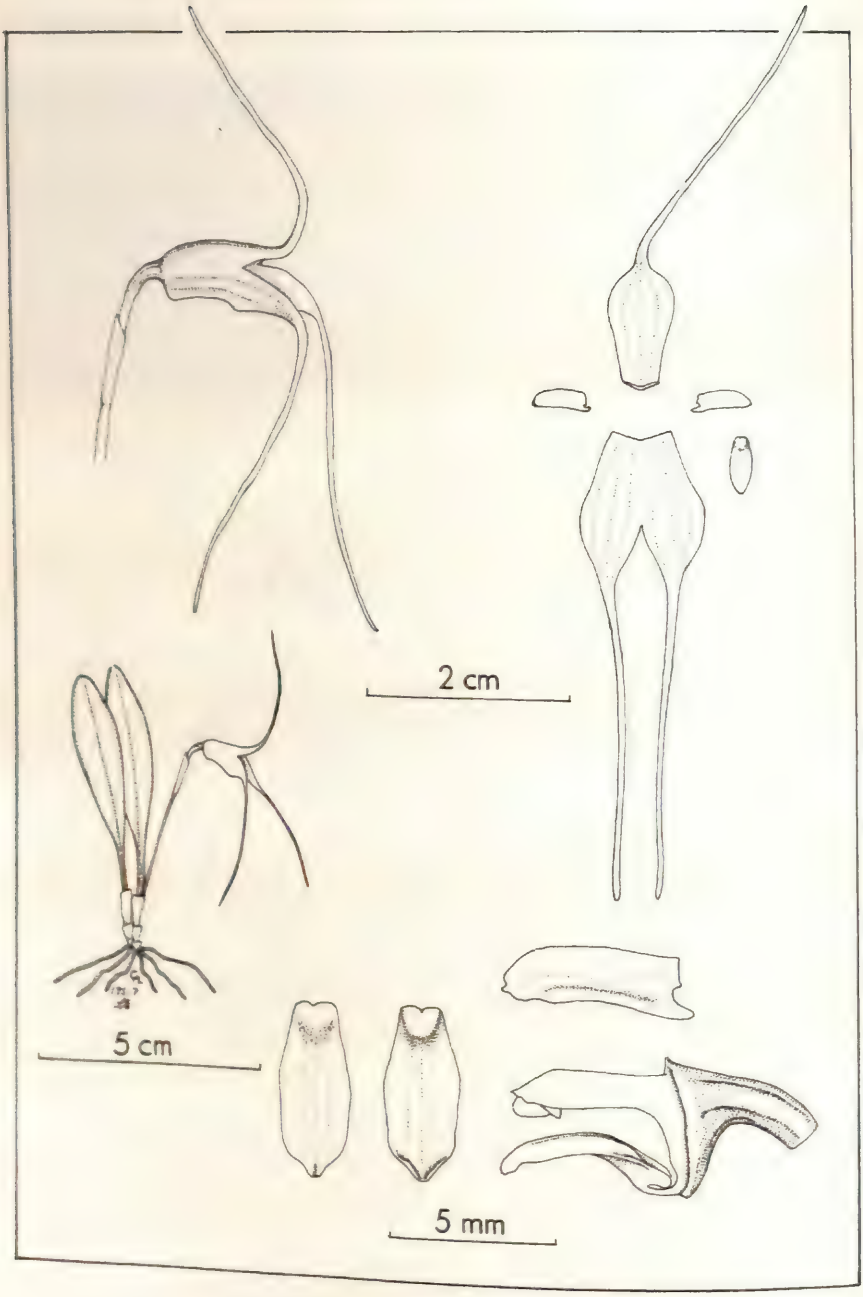


Plate 307. Masdevallia leonardoi

Masdevallia leucantha Lehm. & Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 417, 1921.

Ety.: From the Greek *leucanthos*, "a white flower," referring to the white flowers.

Syn.: *Masdevallia chiquindensis* Kraenzl., Bull. Misc. Inform. 104, 1925.
Ety.: Named for the community of Chiguinda where the species was collected.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-2 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, thickly coriaceous, very narrowly elliptical-obovate, acute, 7-11.5 cm long, 0.6-0.8 cm wide, gradually narrowed below into an indistinctly petiolate base. **Inflorescence** a relatively large, solitary flower borne by a slender, suberect peduncle 5-7 cm long, with a bract below the middle, from low on the ramicaul; floral bract 10-11 mm long; pedicel 15-19 mm long; ovary 5 mm long; **sepals** white, glabrous, the dorsal sepal obovate, 20 mm long, 9 mm wide, connate to the lateral sepals for 10 mm to form a cylindrical sepaline tube, the free portion triangular, acute, contracted into a slender, erect, orange tail ca. 4.5 cm long, the lateral sepals bright orange at the base, ovate, 28 mm long, 8 mm wide, connate 8 mm to form a shallow mentum, the acute apices contracted into slender, orange tails ca. 3.5 cm long; **petals** white, oblong, subacute, 7 mm long, 2 mm wide, the labellar margin longitudinally callous, ending in an obtuse angle above the base; **lip** white, elliptical, 6 mm long, 3 mm wide, shallowly channeled longitudinally, suffused with orange at the rounded apex, the base subcordate, hinged on the end to the column-foot; **column** light green, semiterete, 6 mm long, the foot 3 mm long with a short, incurved extension.

ECUADOR: **Morona-Santiago**: "Forest of Chiguinda, East Andes of Sigsig," alt. 1600-1900 m, May 1887, *F.C. Lehmann 6528* (Lectotype: K; Isolectotypee: HBG, LE; holotype of *M. chiquindensis*: K; isotype: HBG); near Chiguinda, alt. 1600-1800 m, collected by B. Malo, cultivated by O. Arango, at La Estrella, Colombia, 2 Oct. 1977, *C. Luer 1886* (SEL); epiphytic in cloud forest east of Paute, alt. 1750 m, Feb. 1976, cultivated in 1978, *A. Andreetta 67* (SEL); epiphytic along the new road between Macas and Guamote, alt. 1750 m, 6 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12697* (MO); Río Upano, alt. 1500 m, collected by A. Andreetta & M. Portilla, cultivated at Paute, 24 May 1988, *C. Luer 13662* (MO); new road west of Macas to Guamote, alt. 1700 m, 2 Mar. 2001, *C. Luer, J. Luer & A. Hirtz 19601* (MO). **Zamora-Chinchipe**: south of pass south of Yangana, 19 Nov. 1988, by R. Tokach, cultivated by *K. Tokach s.n.* (MO); San Francisco Biology station between Loja and Zamora, alt. 2200 m, 2000, *F. Werner 15015* (MO), C. Luer illustr. 19398.

Two collections of Lehmann (*257* and *6528*) were cited by Kränzlin as types of *M. leucantha* in the original description in 1921. Although the description does not wholly apply to *Lehmann 6528*, it has been designated the lectotype of the species, because *Lehmann 257* at W is *M. uncifera*.

In 1925, Kränzlin described *M. chiquindensis* and cited *Lehmann 6528* from the eastern slopes of southeastern Ecuador as the holotype. In his treatment of *M. leucantha* in his infamous monograph in 1925, Kränzlin cited still another Lehmann collection (*230*), this time from the western slopes of Pichincha, omitting the previous two. The whereabouts of *Lehmann 230* is unknown. A watercolor painting (*t. 116* of herb. spec. *6528*) is at Kew.

Masdevallia leucantha is distinguished by the solitary, white flower, sometimes produced in profusion, with a narrow, sepaline tube and deflexed, ovate, free portions of the lateral sepals that are indistinctly contracted into slender tails. Superficially, it is similar to the small-flowered, widely distributed *M. pumila* with slender, widely spread, tapering, lateral sepals.

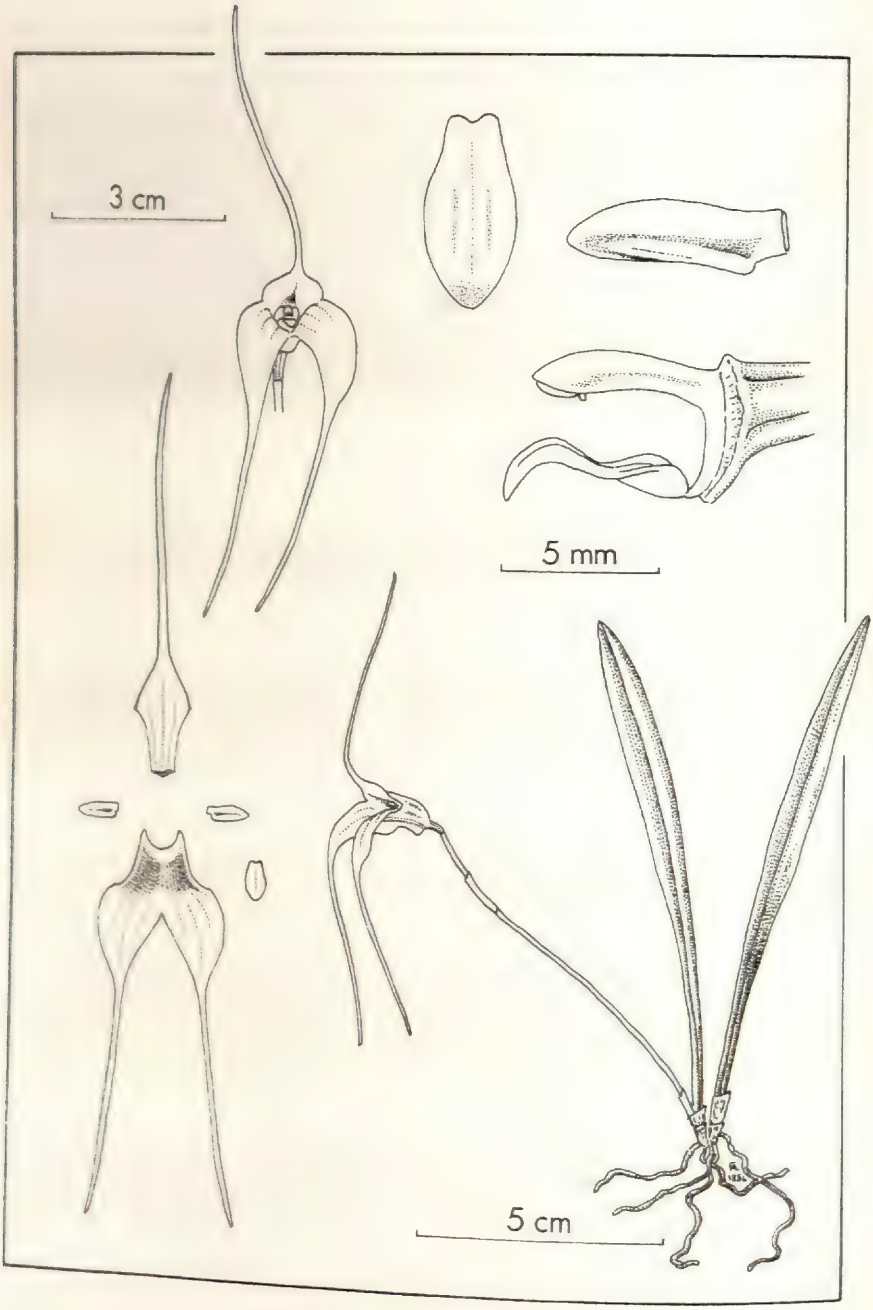


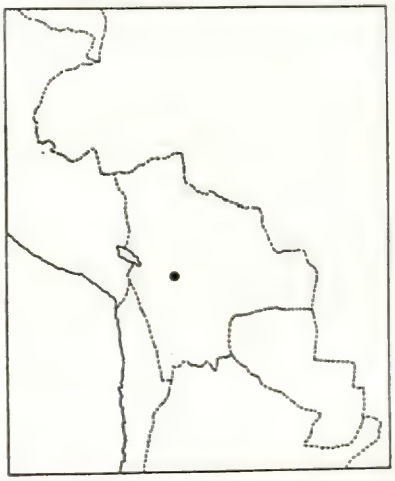
Plate 308. Masdevallia leucantha

Masdevallia lewisii Luer & Vásquez, Lindleyana 8: 47, 1993.

Ety.: Named in honor of its discoverer, Marko Lewis, formerly of Quimé, Bolivia.

Plant small to medium in size, epiphytic, caespitose; roots fleshy. Ramicauls slender, erect, 1.5-2.5 cm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 4-8 cm long including a petiole 1-1.5 cm long, the blade elliptical, subacute, 1-1.8 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single, proportionately very large flower, borne by a slender, suberect peduncle 2-2.5 cm long, with a thin bract at the base, from near the base of a ramicaul; floral bract tubular, 14 mm long; pedicel 15 mm long; ovary 5 mm long; **sepals** membranous, shortly pubescent within above the middle, the dorsal sepal red-purple, obovate, 32 mm long, 18 mm wide at the junction with the lateral sepals, connate to the lateral sepals for 19 mm to form a gaping, conical tube, the apex obtuse, abruptly contracted into a slender tail 4 cm long, the lateral sepals orange-green with purple stripes, obtuse, elliptical-oblong, obtuse, oblique, 40 mm long, connate 22 mm into a lamina 34 mm broad, forming an obtuse mentum with the column-foot, the apices contracted into slender tails 3 cm long; **petals** subfalcate, acute, 10 mm long, 3.5 mm wide, the curved, labellar margin with a longitudinal callus ending in a retrorse process beyond the base; **lip** large, oblong-ovate, 14 mm long, 8 mm wide, minutely short-pubescent with minutely erose margins, the apex obtuse to subtruncate with a midline callus, the disc with a pair of obtuse, erect calli near the middle, the base cordate, hinged beneath; **column** semiterete, 7 mm long, the foot 8 mm long including the incurved extension.

BOLIVIA: **La Paz**: Prov. of Inquisivi, Serrania de Lulini above Aguilani, epiphytic in a tree by a lake called Wichu Pruha, alt. 3350 m, 8 Dec. 1991, *M. Lewis 40824* (Holotype: LPB; Isotype: MO); C. Luer illustr. 16504.



Several plants of this species, from a high altitude where freezing temperatures are not uncommon, were discovered growing on a stunted, moss-covered tree by Marko Lewis. Although the plants are somewhat below average in size for the subsection *Masdevallia*, the flowers are immense.

The sepals are deeply connate into a gaping, conical tube. The dorsal sepal is described as being red-purple, and the laterals as being orange-green with purple stripes. The petals are large, falcate and acute. The oblong, shortly pubescent lip is exceptionally large for the subsection. Also unusual for the subsection is the pair of erect, obtuse calli near the center of the lip. The large, funnel-shaped flowers are suggestive of *M. datura*, a species that grows at a lower altitude in an area nearby.

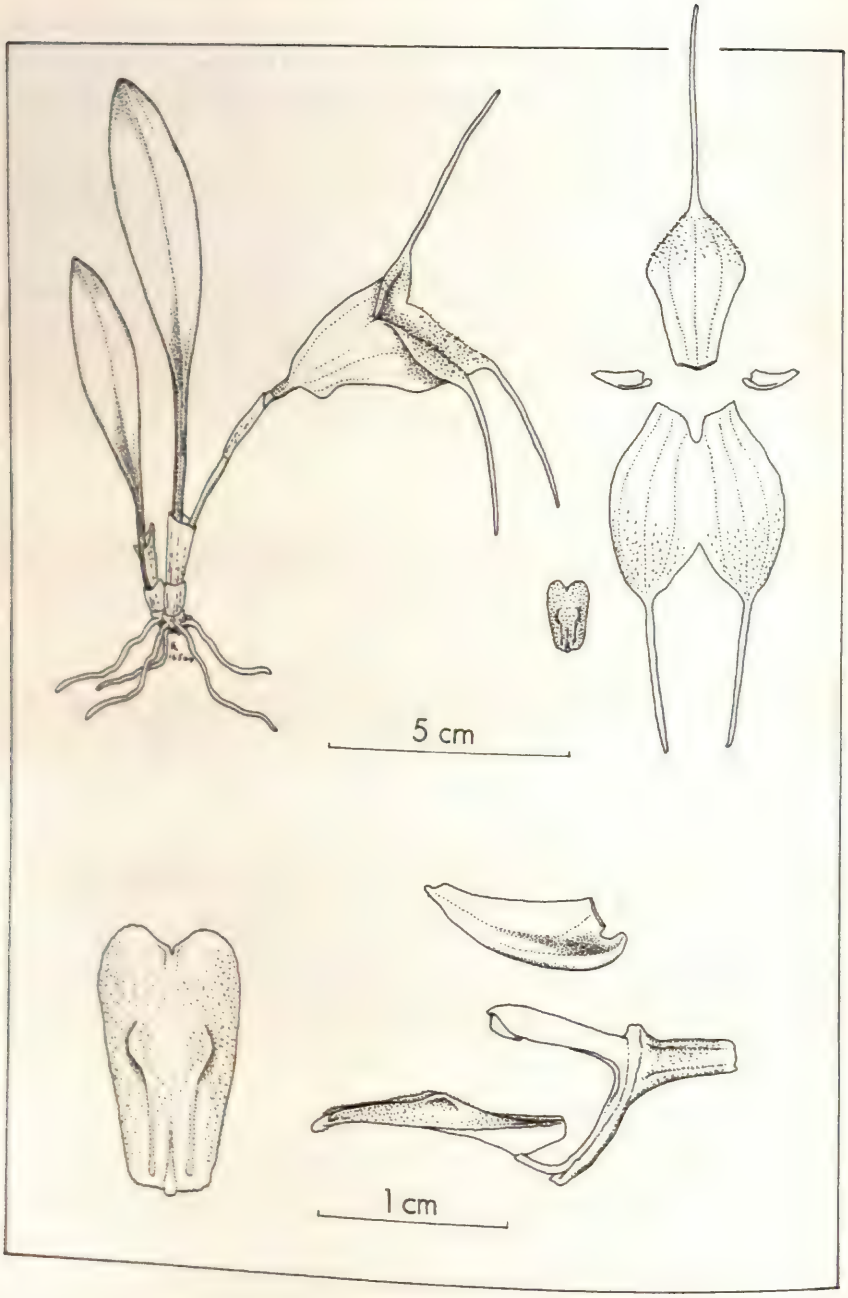


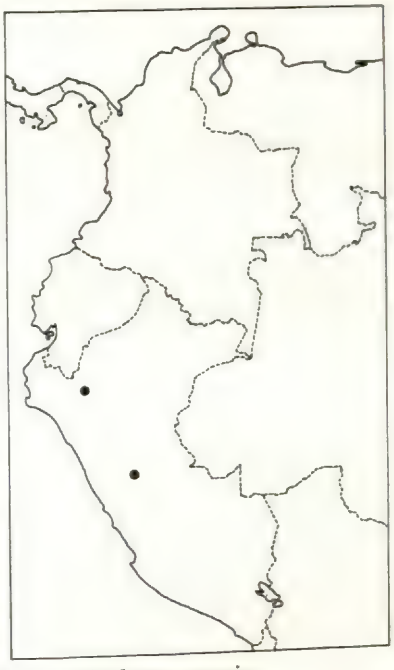
Plate 309. Masdevallia lewisii

Masdevallia lilacina Königer, Die Orchidee 36: 80, 1985.

Ety.: From the Latin *lilacinus*, "lilac," referring to the color of the flower.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 3-4 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect, coriaceous, very narrowly obovate, acute, 5-15 cm long, 0.5-0.9 cm wide, gradually narrowed below into an ill-defined petiole 1.5-2 cm long. **Inflorescence** a solitary flower, borne by a slender, erect peduncle, 2-5 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 5-10 mm long; pedicel 8-12 mm long; ovary green, 3-4 mm long; **sepals** rose-lilac to red-purple, glabrous, the dorsal sepal 35-62 mm long, the blade ovate, 10-12 mm long, 5-8 mm wide, connate to the lateral sepals for 5-6 mm to form a short, cylindrical tube, the apex acute, attenuated into a slender, suberect tail 2-5 cm long, the lateral sepals narrowly ovate, oblique, 30-60 mm long, 5-7 mm wide, connate 4-5 mm, the apices acute, attenuated into forwardly directed, more or less up-curved tails about half the length of the sepal; **petals** white, oblong, 3.5-5.5 mm long, 1-1.5 mm wide, the apex rounded, obscurely lobulate, rarely minutely denticulate-erose, the labellar margin with an erect, oblique, truncate, winglike callus on the middle third; **lip** rose, suffused with purple toward the base, suffused with orange toward the apex, or entirely brown, elliptical-obovate, 4-5 mm long, 1.5-2.75 mm wide, the apex obtuse with a rounded, midline callus, the base subcordate, sulcate, hinged below; **column** white, semiterete, 3-5 mm long, the foot 1-1.5 mm long, with a slender, incurved extension.

PERU: **Huánuco**: between Tingo Maria and Pucallpa, alt. 1700 m, 26 Aug. 1979, *W. Königer & H. Königer K-31a* (Holotype: M; clonotype: K); same collection, cultivated by W. Königer in Munich, Germany, 24 Aug. 1984, *C. Luer 10424* (MO). **Amazonas**: Bongará, Yambrasbamba, alt. 1860-2000 m, Mar. 1967, *S.S. Tillett 673-240* (AMES); without collection data, cultivated by W. Königer in Munich, Germany, 21 Sept. 1985, *C. Luer 11412* (MO).
ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, east of Guisme, alt. 1500 m, 18 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11899* (MO); Cordillera del Condor, east of Paquisha, alt. 1600 m, 4 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12632* (MO). Cordillera del Condor, east of Los Encuentros, alt. 1500 m, 21 Jan. 1989, *C. Luer, J. Luer, P. & A. Jesup 14034*; same area, alt. 1800 m, 20 Jan. 1989, *S. Dalström & T. Höijer 1183* (MO).



This species is found in northern Peru and southeasternmost Ecuador in the Cordillera del Condor. It is very similar to *M. roseola*, which is apparently restricted to southern Ecuador. From *M. roseola*, *M. lilacina* is distinguished by the slender leaves, less than one centimeter wide, and petals with an erect, winglike callus along the lower margin.

Masdevallia lilacina is characterized by the cluster of slender leaves and single, rose or rose-purple flowers. The sepals are narrowly attenuate into long, slender, up-curved tails. The petals have a distinct, marginal callus that is absent in *M. roseola*. The lips are similar. Both species are related to the sympatric but smaller, white-flowered *P. pumila*.

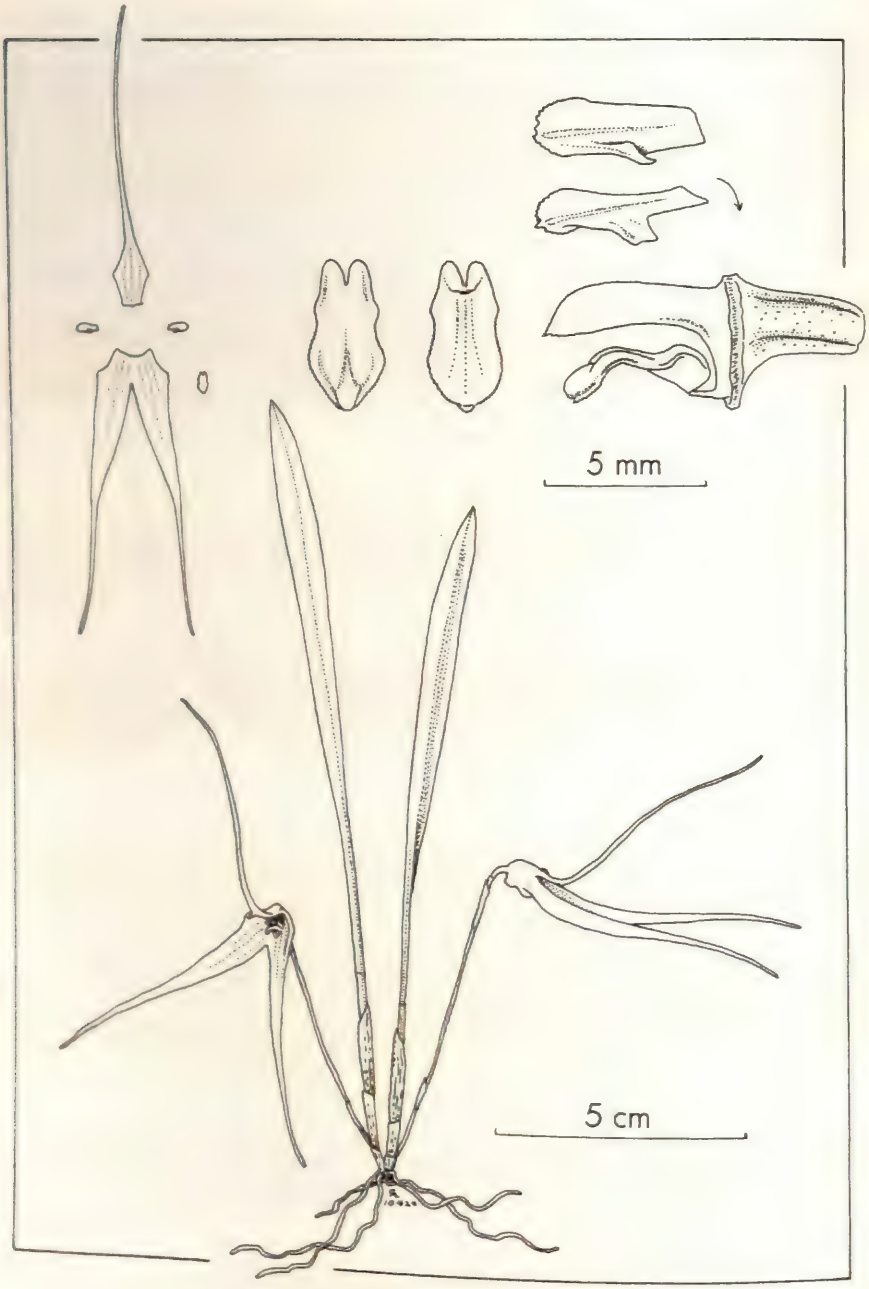


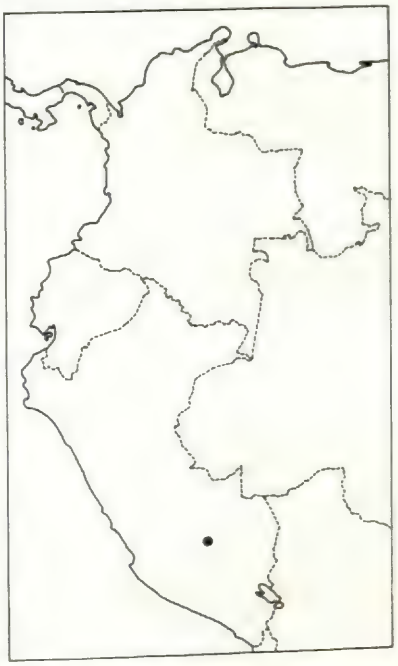
Plate 310. Masdevallia lilacina

Masdevallia lineolata Königer, Die Orchidee 33: 104, 1982; emend. 36: 87, 1985.

Ety.: From the Latin *lineolatus*, "with little lines," in reference to the striped flowers.

Plant medium in size, terrestrial, caespitose; roots slender. Ramicauls erect, slender, 4-7 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 8-12 cm long including the petiole 2.5-5.5 cm long, the blade elliptical, subacute, 1.8-2 cm wide, cuneate below into the slender petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 8-10 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular 15 mm long; pedicel 20 mm long; ovary light green, 6 mm long; **sepals** greenish white with narrow, purple lines along the veins, glabrous externally, minutely short-pubescent within, the dorsal sepal oblong, 16-17 mm long, 8 mm wide, connate to the lateral sepals for 12 mm to form an arcuate, cylindrical, sepaline tube, the apex obtuse, contracted into a suberect to forwardly directed, slender, yellow-green tail 11-12 mm long, the lateral sepals oblong-obovate, oblique, connate 11 mm to form a lamina 15 mm wide expanded, forming a deep mentum with the column-foot, the free portions oblique, subacute, contracted into slender tails 9 mm long, similar to that of the dorsal sepal; **petals** white with a few purple flecks, more or less oblong, unguiculate, 7 mm long, 3.5 mm wide, the apex broad, obscurely bilobulate, the labellar margin with a longitudinal carina, produced into a large, broadly acute, process below the middle; **lip** buff-colored, diffusely flecked with brown, oblong, 9 mm long, 4.5 mm wide, the apex truncate, recurved, with a midline callus, the disc with three longitudinal, dark purple lines, the base subtruncate, hinged beneath; **column** white with the margin purple, semiterete, 7 mm long, the foot 3 mm long including a short, incurved extension.

PERU: **Cuzco**: near Laris, alt. 2850 m, May 1981, *M. Arias S. A-26* (Holotype: SEL; clonotype: K); same collection, cultivated by W. Königer in Munich, Germany, 5 Sept. 1981, *W. Königer s.n.* (SEL, K, M, USM, W, Herb. H. Königer), C. Luer illustr. 6452.



This species, apparently rare and endemic in the mountains of southeastern Peru, was discovered by Dr. César Vargas C. of Cuzco. Collections were made by Sr. Manuel Arias and forwarded to the Königers in Munich.

Although *M. lineolata* appears similar to *M. coriacea* and its numerous relatives in subsection *Coriaceae*, it probably is more closely allied to the species identified with subsection *Masdevallia*. The white sepaline tube is striped with thin, purple lines along the veins, compatible with both subsections, but the substance is finer than that usually seen in subsection *Coriaceae*. The petal, however, with the sharp marginal angle below the middle suggests subsection *Coriaceae*, but the lip is thin and flat, suggesting subsection *Masdevallia*. The lines dividing all the subsections become blurred as the assignment of intermediate species is attempted.

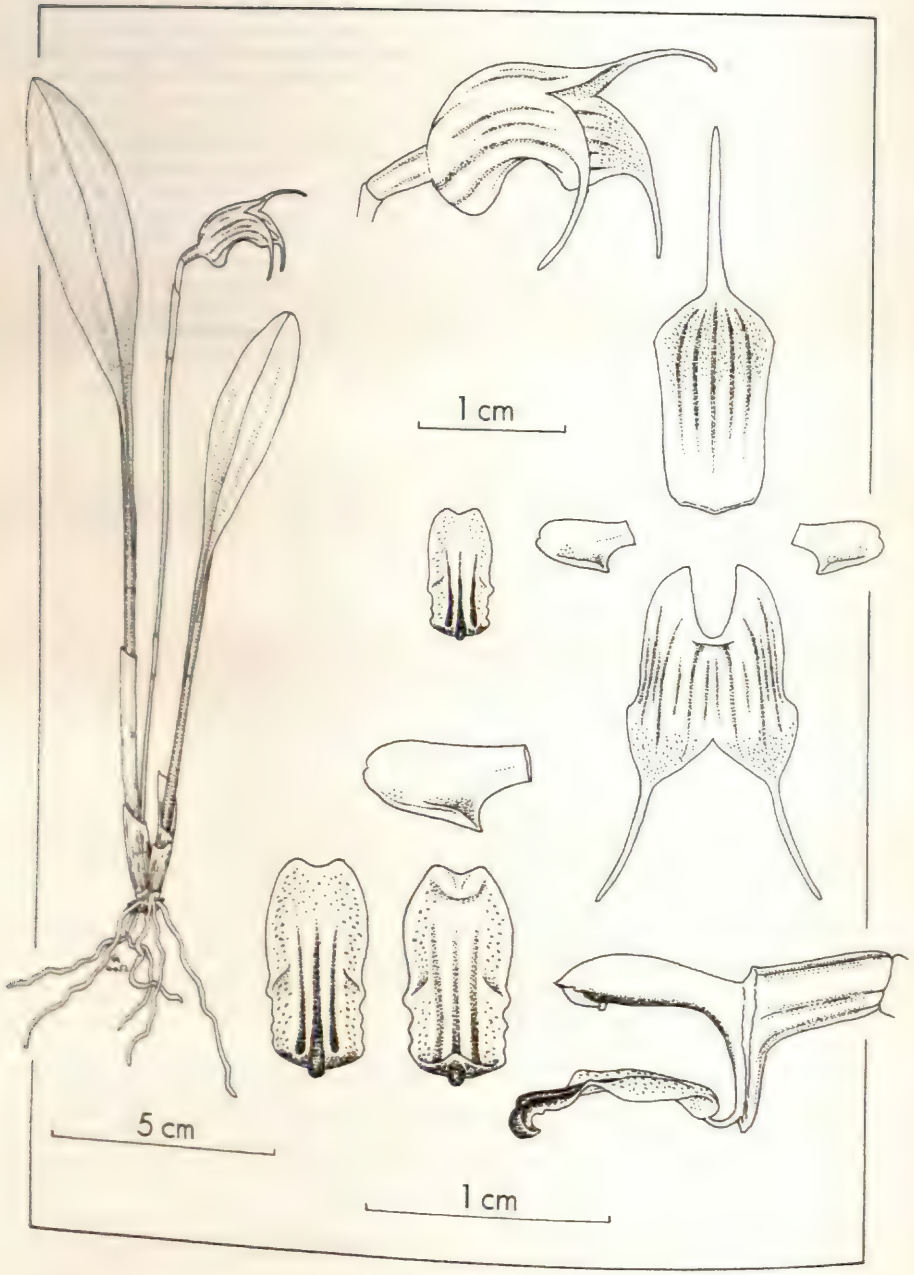


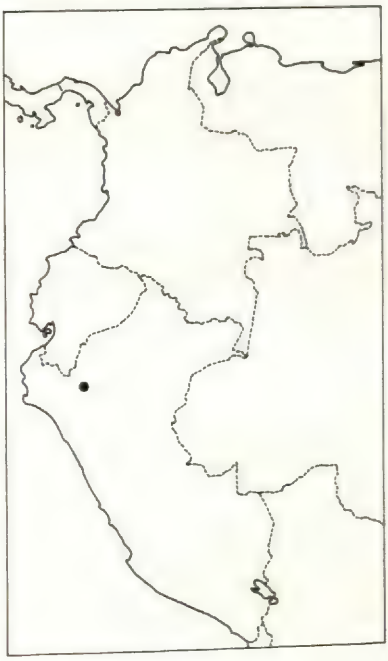
Plate 311. Masdevallia lineolata

Masdevallia lucernula Königer, Die Orchidee 32: 65, 1981; emend. 36: 87, 1985.

Ety.: From the Latin *lucernula*, "a small lamp," in allusion to the brightly colored sepaline tube.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 1.5-3 cm long, enclosed by 2-3 blackish, loose, tubular sheaths. **Leaf** erect, coriaceous, 5-9 cm long including the petiole 1.5-4 cm long, the blade elliptical-obovate, subacute to obtuse, 1.4-2.1 cm wide, the base cuneate into the black petiole. **Inflorescence** a drooping, solitary flower borne by an erect, slender peduncle 6.5-10 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 8-10 mm long; pedicel 10-13 mm long; ovary 5-6 mm long; **sepals** bright red to red-purple toward the apex, red-orange toward the base, shortly pubescent within, the dorsal sepal oblong, longitudinally concave, 30 mm long, 10 mm wide expanded, connate to the lateral sepals for 25 mm to form a cylindrical tube with a small, rounded aperture, the apex rounded, abruptly contracted into a slender, red-purple tail 10 mm long, the lateral sepals oblong, connate 20 mm into a longitudinally concave lamina 27 mm long, 25 mm wide expanded, the rounded apices contracted into slender tails 7 mm long, more or less connivent with the tail of the dorsal sepal; **petals** yellow-white, oblong, 7 mm long, 2.75 mm wide, the apex obliquely subtruncate, faintly apiculate, the labellar margin with a longitudinal callus terminating above the base in a broad, thick, incurved process; **lip** white, lightly dotted with purple, oblong-ovate, constricted above the middle, 6.75 mm long, 3 mm wide, the apex round with a midline, marginal callus, the disc longitudinally channeled, the base subtruncate, hinged beneath; **column** white with a thin, purple margin, semiterete, 6 mm long, the foot 4 mm long with a thin incurved extension.

PERU: **Amazonas**: Bongará, between Pomacochas and Moyabamba, alt. 2100 m, 1979, *J. Meza T. s.n.* (Holotype: SEL); same collection, cultivated in Munich, Germany, May 1980, *W. Königer 81* (K, M, SEL), C. Luer illustr. 5283; same collection, cultivated at Colomborquídeas in Colombia, 25 Apr. 1988, *C. Luer 13302* (MO).



This species has been imported only once from a collection from Amazonian Peru by Jorge Meza Torres. Apparently, it has not been discovered again. Vegetatively, the leaves vary from short and nearly round to long and elliptical. The peduncle carries the nodding flower at least as high as, if not higher than the leaves.

The color of the inflated, tubular flower is bright red, orangish toward the base and purplish toward the small, round apical opening. The short, slender sepaline tails of the type-clone are connivent, but they are more or less free on other plants. Out of sight, the oblong lip has a thick, retrorse process at the base, and the lip is constricted in the apical third.

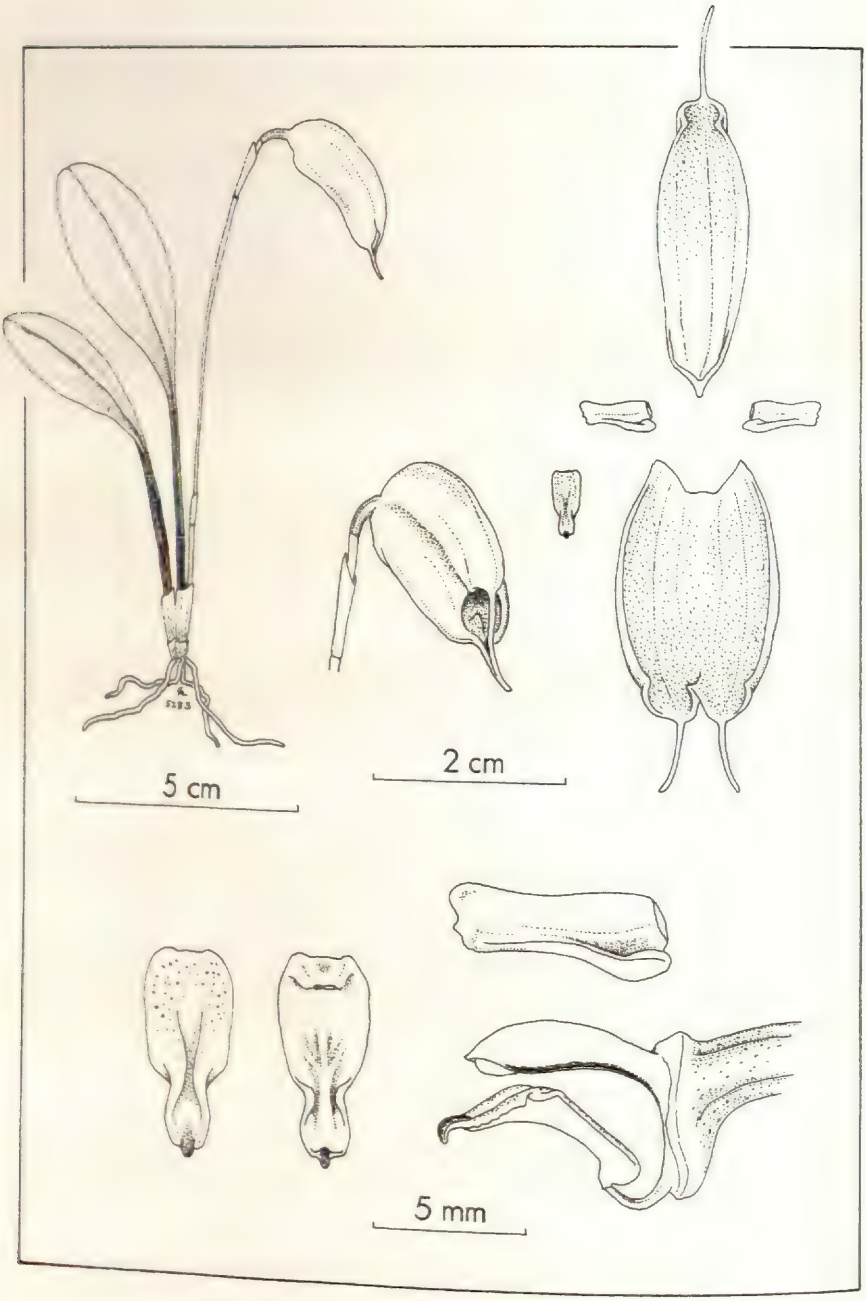


Plate 312. Masdevallia lucernula

Masdevallia macropus Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 454, 1899.

Ety.: From the Greek *makropus*, "large-footed," referring to the long ramicauls and petioles of the leaves.

Plant large, epiphytic to terrestrial, ascending-caespitose; roots coarse. Ramicauls stout, erect, 4-10 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 12-20 cm long including the petiole 3-9 cm long, the blade elliptical, obtuse, 3.5-5 cm wide, the base cuneate into the channeled petiole. **Inflorescence** a solitary flower, 1-3 produced simultaneously, borne by an erect peduncle 11-18 cm long, from high or near the middle of the ramicaul, with a bract below the middle; floral bract tubular, 13-20 mm long; pedicel 20-23 mm long; ovary 7-9 mm long; **sepals** yellow, suffused with red-purple above the middle, glabrous, the dorsal sepal elliptical, ca. 35 mm long, 9-10 mm wide, connate to the lateral sepals for 17 mm to form a cylindrical tube, the narrowly triangular free portion acute, gradually attenuated into a slender, erect to reflexed, greenish tail 5-7 cm long, the lateral sepals ovate, oblique, ca. 35 mm long, 10-11 mm wide, connate 10 mm to form a shallow, secondary mentum above the mentum with the column-foot, the acute free portions attenuated into slender tails similar to that of the dorsal sepal; **petals** white, oblong, 7.5 mm long, 3 mm wide, the truncate apex irregularly lobed, the lower margin with a longitudinal callus ending in a free, retrorse tooth above the base; **lip** diffusely mottled with red-purple, oblong, 6 mm long, 3 mm wide, the apex obtuse, revolute, the disc with a parallel pair of low calli, the base truncate, hinged below; **column** white with a purple margin, semiterete, 6 mm long, the foot stout, 4 mm long with a short extension.

ECUADOR: **Loja**: Páramo de Matanga, alt. 3000-3200 m, *F.C. Lehmann 6562* (Holotype: K; Isotypes: AMES, NY, US); Nudo de Sabanilla, between Yangana and Valladolid, alt. 2750-2900 m, 28 Feb. 1985, *B. Öllegaard et al., 58430* (AAU, MO, QCA); scrub vegetation south of Yangana north of the pass, alt. 2700 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10895* (MO). **Morona-Santiago**: Campamento San Miguel east of Sigsig, alt. 3000 m, 8 Apr. 1968, *G. Harling, G. Storm & B. Ström 8031* (AMES, GB); "Andes east of Cuenca," alt. 2800 m, collected by B. Malo, cultivated at Tarqui near Cuenca, 20 Aug. 1978, *C. Luer 3451* (SEL); epiphytic in scrub forest east of Sigsig, alt. 2950 m, 15 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13343* (MO). **Zamora-Chinchipe**: epiphytic in scrub forest between Loja and Zamora, alt. 2800 m, collected by B. Malo, cultivated at Tarqui, 14 July 1977, *C. Luer 1700* (SEL); epiphytic in cloud forest south of Yangana, alt. 2700 m, 3 Mar. 1982, *C. Luer, A. Andreetta, D. D'Alessandro & S. Dalström 7110* (MO, SEL); same area, alt. 2700 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10895* (MO); Nudo de Sabanilla, Aug. 1981, *D. D'Alessando 99* (SEL); south of the pass between Jimbura and Zumba, alt. 2800 m, 24 Jan. 1986, *S. Dalström & T. Höijer 1092* (MO).

This handsome, robust species, first found by Consul Lehmann, is infrequent and local in cold, wet, cloud forests of southern Ecuador. It grows epiphytically in the scrubby, mossy trees and terrestrially in the loose humus beneath them. The leaves are large and long-petiolate. The large, red-purple, solitary, long-tailed flower is produced from a peduncle, or a cluster of two or three peduncles, arising from above the middle of the ramicaul. The tails are often 10 centimeters long. The basal process of the petal is an incurved hook. The lip is oblong with an incurved, purple apex.

Masdevallia macropus is very similar to *M. mastodon* of the Eastern Cordillera of Colombia. The free portion of the dorsal sepal of *M. macropus* is acute and longer than the short, obtuse apex of *M. mastodon*.

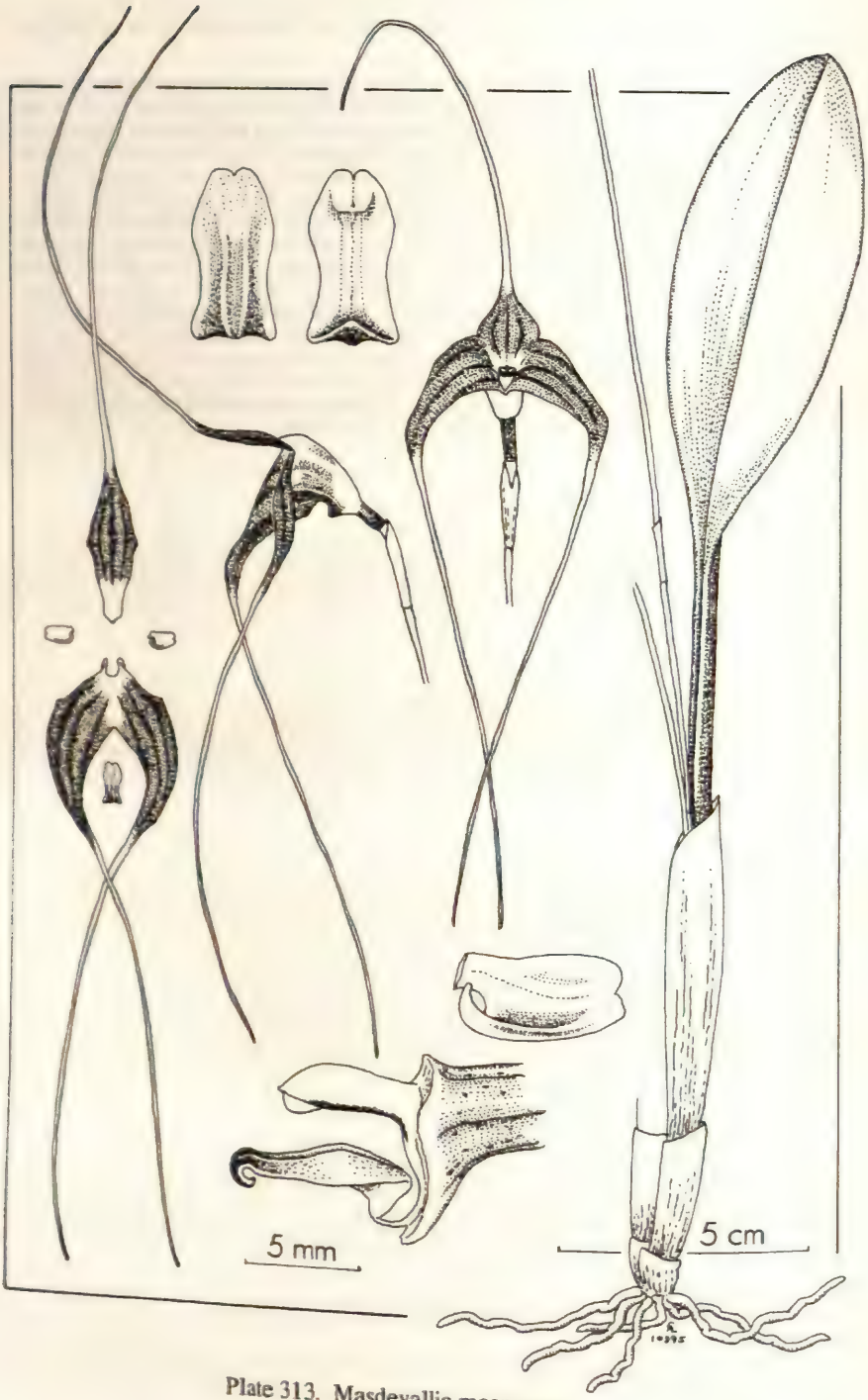


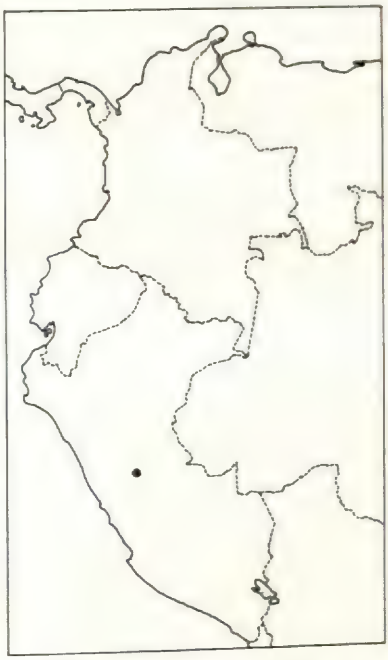
Plate 313. Masdevallia macropus

Masdevallia manoloi Luer & Arias, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 108, 1998.

Ety.: Named for Victor Manuel Arias, "Manolo," son of Manuel Arias Silva of Lima, Peru.

Plant medium in size, caespitose; roots slender. Ramicauls blackish, stout, erect, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 5-8.5 cm long including the petiole 2-3 cm long, the blade elliptical, obtuse, 1.3-2.2 cm wide, cuneate below into the petiole. **Inflorescence** a single flower, borne by a slender, erect to suberect peduncle up to 12 cm long, with a bract near the base, from near the middle of the ramicaul; floral bract tubular, 12-15 mm long; pedicel 12-15 mm long; ovary 7 mm long; **sepals** yellow, with borders and veins blackish brown, the dorsal sepal erect, shallowly concave, 25-30 mm long, 12-14 mm wide, connate to the lateral sepals for 5 mm to form a short, shallow, sepaline cup, the apex obtuse, contracted into a slender tail 7.5 cm long, the lateral sepals ovate, oblique, 24 mm long, connate 13-14 mm into a deep cavity below the column-foot, 22 mm wide together, with the sides above the middle incurved, with the apices acute, in apposition, contracted into slender tails ca. 7 cm long; **petals** white, cartilaginous, ovate-triangular, 7 mm long, 3 mm wide, the apex acute with the upper margin incurved, the labellar margin with a thick callus ending in an incurved process extending beyond the base; **lip** subobovate, erect, arcuate, 7 mm long, 3.5 mm wide, with the margins thin, irregular above the middle, contracted in the distal quarter into a narrow lobule 1.5 mm long with a minute, rounded callus at the tip, the disc thickened toward the truncate base, hinged beneath to the column-foot; **column** thick, semiterete, 5 mm long, the foot equally long including the slender, incurved extension.

PERU: **Huánuco**: Huánuco, Acomayo, Zingo Monte, alt. 2500 m, collected by Saul Ruiz Pérez, 13 Sept. 1997, flowered in cultivation at Vivero Manuel Arias Silva, Lima, Peru, Nov. 1997, *C. Luer 18671* (Holotype: MO).



Although this spectacular species was described in subsection *Caudatae*, it sits on the border between subsection *Caudatae* and subsection *Masdevallia*. The dorsal sepal is indeed shallowly connate to the lateral sepals, but the lateral sepals are connate above the middle into a gaping, sepaline cup with the apices in apposition. For this reason, it is treated here in subsection *Masdevallia*.

The leaves, surpassed by the slender peduncle, are elliptical with distinct, elongate, blackish petioles and ramicauls. The flower is distinguished by the brownish stripes on yellow, with very long, slender tails. The proportionately large dorsal sepal stands erect above the synsepal with a deep mentum below the column-foot. The petals are acute at the apex with a thick, basal process. The arcuate lip protrudes from the tip of a long, incurved column-foot to which it is loosely hinged. Above the middle, the lip is contracted with irregular margins into a narrow lobule with a minute, rounded callus at the tip.

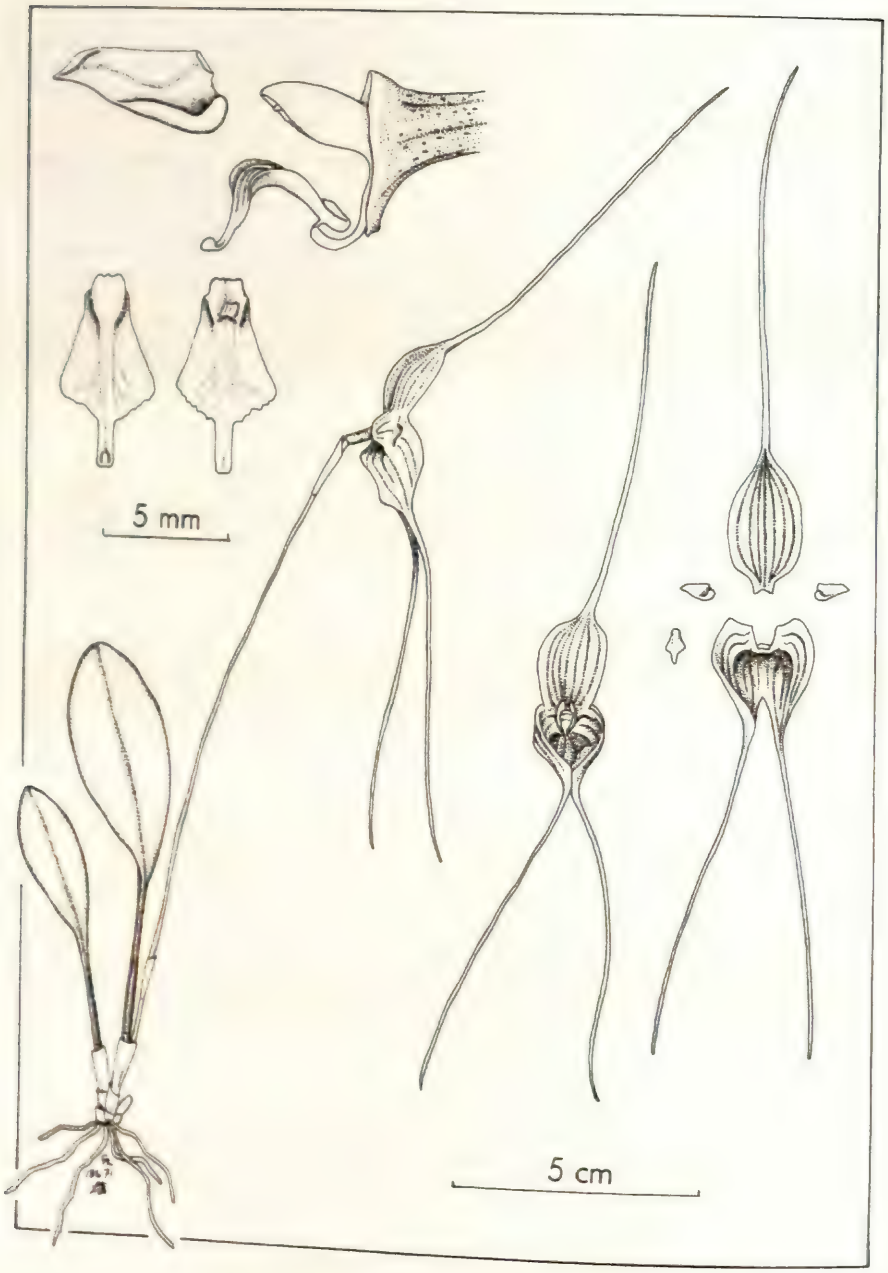


Plate 314 Masdevallia manoloi

Masdevallia mastodon Rchb.f., Bonplandia 3: 69, 1855.

Ety.: Named for the *mastodon*, an extinct, elephant-like mammal with long, curved tusks, reminiscent of the long, curved, sepaline tails of this species.

Plant large, epiphytic, shortly repent to caespitose; roots coarse. Ramicauls more or less blackish, stout, erect, 3-8 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 10-19 cm long including the petiole 4-9 cm long, the blade elliptical, subacute to obtuse, 2-4 cm wide, cuneate below into the petiole. **Inflorescence** a solitary, showy flower, borne by a slender, erect peduncle 6-13 cm long, with a tubular bract below the middle, from 2-5.5 cm above the base of the ramicaul; floral bract 10-12 mm long; pedicel 12-22 mm long; ovary 8 mm long; **sepals** dark purple to orange at the base, or pale rose to white at the base, glabrous, the dorsal sepal obovate, concave, 20-23 mm long, 10-11 mm wide expanded, connate to the lateral sepals for 15-18 mm to form a curved, sepaline tube, the apex acute, contracted into a slender, erect to more or less reflexed tail 4-6 cm long, the lateral sepals ovate, oblique, acute, 25-28 mm long, 10-11 mm wide, connate for 10 mm to form both a primary and a secondary mentum; **petals** yellow-white, often marked with purple, oblong, 6-7 mm long, 2.75-3 mm wide, the apex oblique, obscurely bilobed, the labellar margin with a longitudinal callus ending in a long, retrorse process above the base; **lip** cream, diffusely suffused with purple, oblong, 7 mm long, 3-3.5 mm wide, the apex subtruncate, decurved, the disc shallowly channeled between a pair of low, longitudinal calli, the base subcordate, hinged beneath; **column** white with a purple margin, semiterete, 4-5 mm long, the foot 3 mm long with a short, incurved extension.

COLOMBIA: **Santander del Norte**, old department of Ocaña: Alto de San Francisco, alt. "6,000 ft.," *H. Wagener s.n.* (Holotype: W); same area, epiphytic in scrub forest at the pass north of Villacaro, alt. 2750 m, 5 May 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7763* (AMES, SEL); same area, alt. 2850 m, 11 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10270* (MO); cultivated by W. Königer in Munich, Germany, 3 Oct. 1985, *C. Luer 11417* (MO). **Santander**: near the La Baja gold mines, alt. 2500 m, 19 May 1982, *C. Luer, R. Escobar & D. Portillo 7885* (SEL).

Reichenbach described *Masdevallia mastodon* from a single flower collected by Wagener at a place called "Alto de San Francisco" in the province of Ocaña in New Granada. He briefly compared the flower to *M. schlimii*, but he knew nothing about the rest of the inflorescence or vegetative parts. This species had not been recognized again since the original flower was collected.

To locate this particular Alto de San Francisco after more than a lapsed century required some detective work on the part of Rodrigo Escobar, because this feature was not included on any modern map. On an old map in a library Escobar finally found the name at a pass about midway between the towns of Ocaña and Pamplona. Plotting this area onto a modern road map placed it north of Villacaro, about where the old trail would have gone between the two towns. Then, finding a negotiable road to this area became our next problem. Our choice was a narrow, treacherous, steep and muddy road that was in the process of sliding off the mountainside. The trip proved worth the risk because *M. mastodon* was where we had hoped it would be, and in full flower. The plants were growing in low, scrubby, subparamo trees in company with many other species of orchids including *M. elephanticeps*.

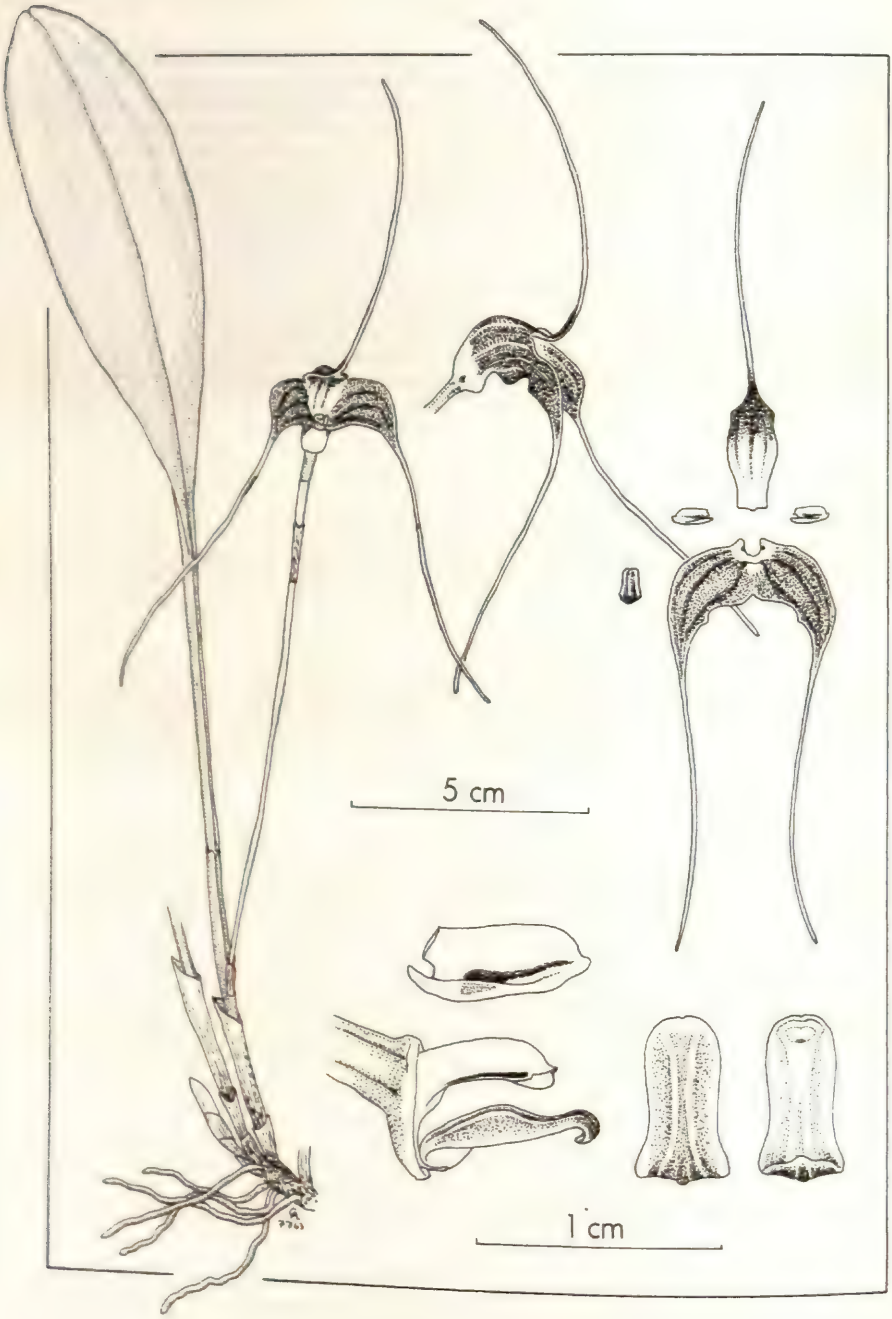


Plate 315. Masdevallia mastodon

Masdevallia medinae Luer & Portilla, sp. nov.

Ety.: Named for Hugo Medina of Gualaceo, Ecuador, who with Ivan Acaro, collected this species.

Species haec *M. cranioni* Luer affinis, sed sepalis majoribus cum caudis laminis brevioribus, petalis tridentatis et labello oblongo apiculato differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-1.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 4-7 cm long including the petiole 1-2 cm long, the blade elliptical, obtuse, 1-1.7 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by a slender, suberect to subhorizontal peduncle 4-4.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 10 mm long; pedicel 13 mm long; ovary 5 mm long; **sepals** orange, cellular-pubescent within, with minutely erose edges, the dorsal sepal suboblong, concave-inflated, 28 mm long, 10 mm wide expanded, connate to the lateral sepals for 12 mm to form an ovoid, sepaline cup, the apex rounded, abruptly contracted into a slender, orange tail 17 mm long, the lateral sepals rose, obovate-oblong, oblique, 23 mm long, connate 13 mm, each 15 mm wide, the apices rounded, abruptly contracted into slender, orange tails 15 mm long; **petals** white, cartilaginous, more or less oblong, 6 mm long, 1.5 mm wide, the apex tridentate, the labellar margin thickened with a longitudinal carina produced into a large, thick, incurved process beyond the base; **lip** white, finely dotted with pink, oblong, 6 mm long, 2.75 mm wide, the apex obtuse, decurved, a small, brown, midline callus, apiculate, the disc essentially featureless, the base obtuse, hinged beneath; **column** white, semiterete, with a thin, purple margin, 5 mm long, the foot 3 mm long including a free, incurved extension.

ECUADOR: **Morona-Santiago**: Cordillera del Condor, Manchinaza, alt. ca. 1500 m, collected by Hugo Medina and Ivan Acaro, cultivated by Ecuagenera in Gualaceo, 7 Mar. 2001, *C. Luer 19862* (Holotype: MO).

This species, recently discovered in southeastern Ecuador, is related to the Peruvian *M. cranion* with similar, elliptical, petiolate leaves. The more or less suberect peduncle is shorter than the leaves, and bears a considerably larger flower. The sepals are semiconnate into an orange, ovoid sepaline tube with an inflated dorsal sepal. The lateral sepals are rounded without forming a mentum. The slender tails are shorter than the blades. The petals are tridentate at the apex, and with a large, knuckle-like callus at the base. The lip is oblong and minutely apiculate.

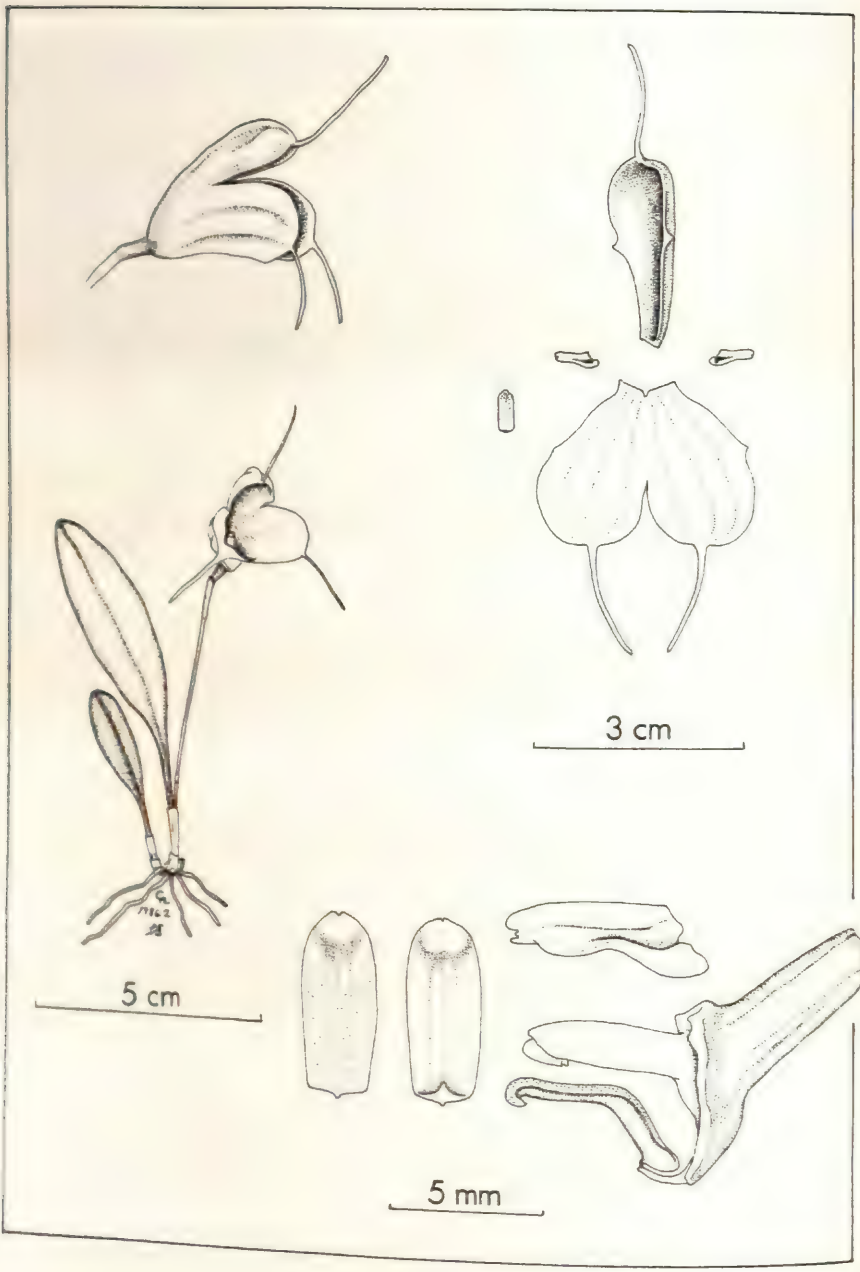


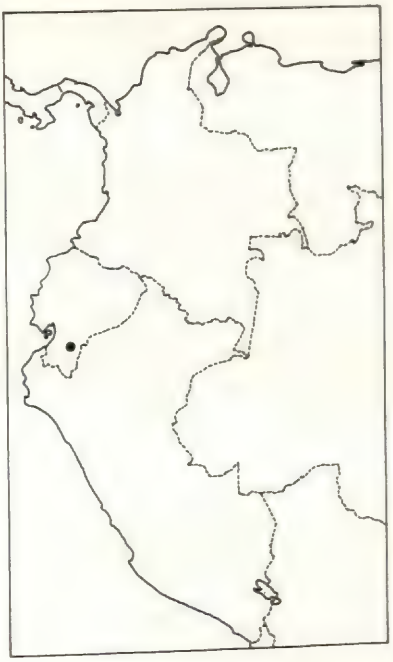
Plate 316. Masdevallia medinae

Masdevallia melanoglossa Luer, Lindleyana 4: 114, 1989.

Ety.: From the Greek *melanoglossa*, "a black tongue," referring to the purple-black lip.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 0.5-1 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute, 4-7 cm long including an indistinct petiole, 3-4 mm wide, gradually narrowed below into the slender, subpetiolate base. **Inflorescence** a solitary flower borne by a slender, erect peduncle 2.5-3.5 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 4 mm long; pedicel 6-7 mm long; ovary 3 mm long; **sepals** white, glabrous, the dorsal sepal oblong-obovate, the blade 8-10 mm long, 4 mm wide, connate to the lateral sepals for 7 mm to form a cylindrical sepaline tube, the apex obtuse, contracted into a slender, light yellow tail 9-11 mm long, the lateral sepals obovate, oblique, the blades 8-10 mm long, 5-6 mm wide, connate 6 mm, the free portions obtuse, contracted into slender tails similar to that of the dorsal sepal; **petals** white, oblong, 3.5 mm long, 1.5 mm wide, the apex obtuse, obscurely bilobulate, the labellar margin with a longitudinal callus ending in an acute, incurved process above the base; **lip** purple-black, elliptical-oblong, 4 mm long expanded, 1.5 mm wide, the apex obtuse, recurved, the disc lightly channeled, the base thickened, subcordate, hinged beneath; **column** white, semiterete, 3 mm long, the foot 2.5 mm long, with a long, incurved extension.

ECUADOR: **Loja**: epiphytic in cloud forest west of the pass between Loja and Zamora, alt. 2600 m, collected by W. Teague, April 1988, cultivated in San Francisco, 8 July 1989, *C. Luer 14388* (Holotype: MO).



This small species with narrow leaves and a small, white flower with pale yellow tails about as long as the sepaline tube appears similar to *M. minuta* and its relatives. However, the entire lip and the petal with a marginal callus ending in an acute, incurved process at the base place this species in section *Masdevallia* instead of section *Minutae*. The deep purple-black lip is in marked contrast to the white sepals, petals and column. It is visible through the thin sepals.

Masdevallia melanoglossa was discovered by Walter Teague in 1988 without flowers. A few sterile plants were cultivated and flowered the following year.

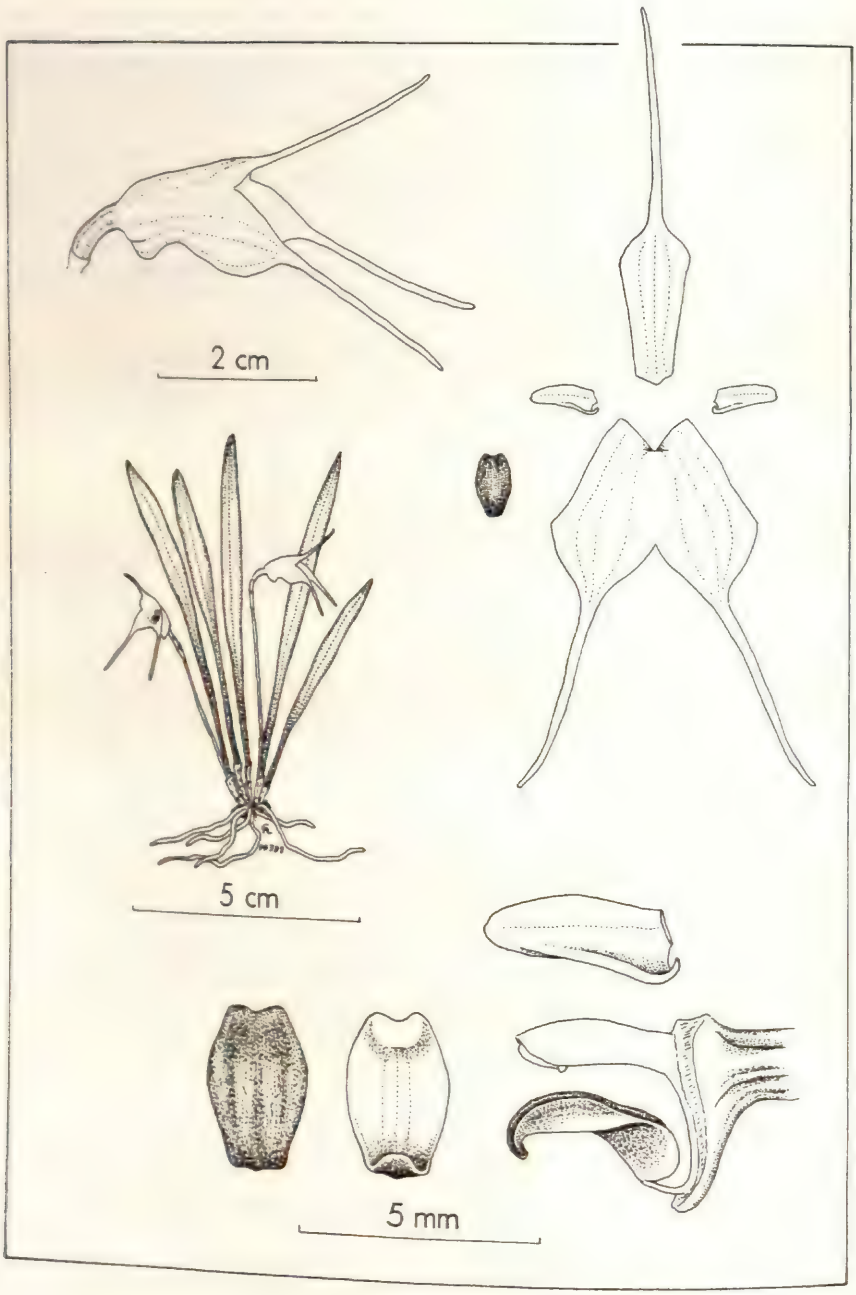


Plate 317. Masdevallia melanoglossa

Masdevallia midas Luer, Selbyana 5: 394, 1981.

Ety.: Named for the mythological Greek king Midas whose touch turned everything into gold.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, stout, erect, 1-2.5 cm long, enclosed by 2-3 loose, blackish, tubular sheaths. **Leaf** thickly coriaceous, dark green, speckled and mottled with black beneath, petiolate, 2.5-9 cm long including the 0.5-3.5 cm long blackish petiole, the blade elliptical, acute, 1-1.8 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower borne by an erect, blackish peduncle 1.5-4 cm long from low on the ramicaul; floral bract 4-7 mm long, enclosing the 1.5-2 mm long pedicel and part of the 2.5-4 mm long ovary; **sepals** fleshy, light green turning to yellow, then orange with age, dotted with black, the dorsal sepal narrowly ovate, 23 mm long, 3.5 mm wide, connate to the lateral sepals for 10 mm to form a cylindrical tube, the free portions thickened, narrowly triangular, obtuse, the lateral sepals each 22 mm long, 4 mm wide, connate 9 mm, the free portions subfalcate, similar to that of the dorsal sepal; **petals** white, broadly oblong, 4.5 mm long, 2 mm wide, the apex truncate, minutely apiculate, thickened along the labellar margin and ending in an obtuse angle above the shortly unguiculate base; **lip** yellow-green, oblong-ligulate, 7 mm long, 3 mm wide, slightly dilated above the middle to the thickened, obtuse, orange apex, the thickened base dark yellow, cordate, hinged beneath, the disc with a pair of low, longitudinal calli; **column** greenish white, semiterete, 5 mm long, the foot short with an incurved extension.

ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest south of Yangana south of the pass, alt. 2700 m, 12 May 1981, *C. Luer, J. Luer, D. D'Alessandro et al. 6208* (SEL). **Loja**: epiphytic in cloud forest south of Yangana north of the pass, alt. 2700 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10894* (MO).

This species is known from only one region in southeastern Ecuador where it grows abundantly near a cold, windswept pass with *M. macropus* and *M. parvula*. The section of *Masdevallia* to which this species and its relative, *M. tubulosa*, should be assigned, is not obvious. The absence of a well-developed process at the base of the petals and the presence of a simple lip suggest the Central American section *Reichenbachianae*.

A fresh flower of *M. midas* is green, gradually turning to orange. The sepaline tube is narrow with the apices thickened and narrowly triangular ("tailless"); they are narrowly attenuate in *M. tubulosa*. In both species, the marginal callus of the petals ends in an obtuse angle above the base, and the lip is oblong and shallowly channeled between a pair of low, longitudinal calli.

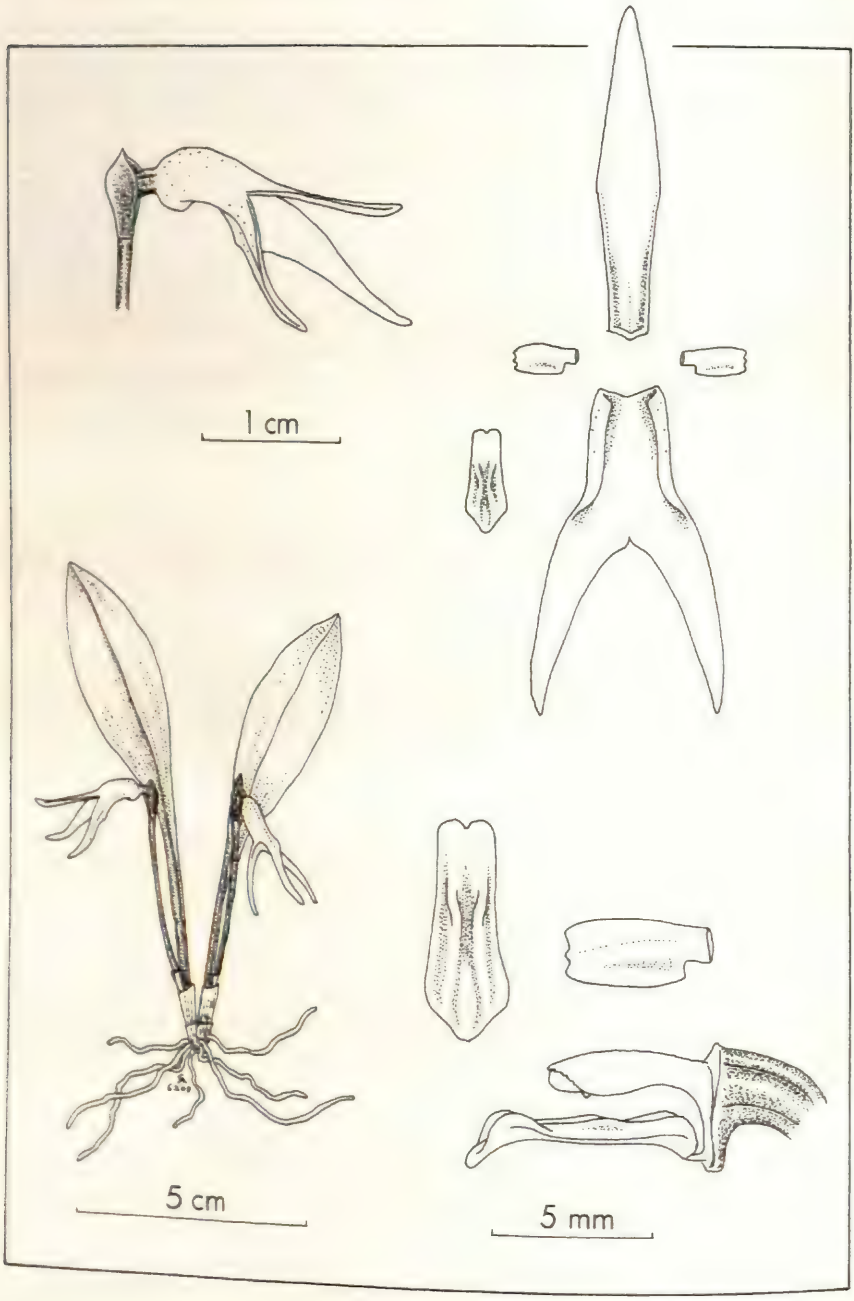


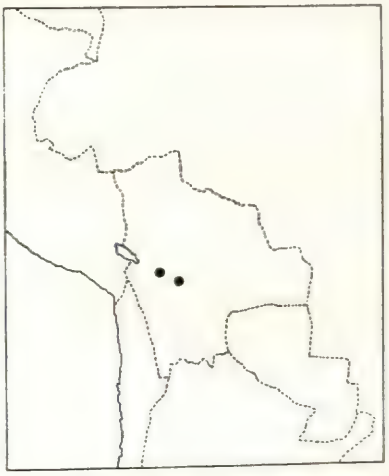
Plate 318. Masdevallia midas

Masdevallia nebulina Luer, Phytologia 42: 465, 1979.

Ety.: From the Latin *nebulinus*, "foggy," referring to the habitat.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 1-2 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 3-6.5 cm long including the petiole 1.5-2 cm long, the blade elliptical, acute, 0.9-1.3 cm wide, gradually narrowed below into the base. **Inflorescence** a solitary flower, borne by a slender, suberect peduncle, 4-6.5 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 6 mm long; pedicel 7-14 mm long; ovary 2.5-3.5 mm long; **sepals** white, glabrous, the dorsal sepal obovate, carinate, 9 mm long, 4 mm wide, connate to the lateral sepals for 6 mm into a broad, sepaline tube, the free portion rounded, contracted into an erect, slender, yellow tail 9-13 mm long, the lateral sepals suffused with orange-brown basally, oblong, oblique, 8 mm long, 4.5 mm wide, connate 2.5 mm, forming a conspicuous mentum with the column-foot, the apices obtuse, contracted into tails similar to that of the dorsal sepal; **petals** white, oblong, 4 mm long, 1.75 mm wide, with the apex irregularly and obscurely bilobed, the labellar half with an oblique callus ending in a broad, triangular, subacute process at the base; **lip** white, suffused and flecked with rose, oblong, 4.5 mm long, 1.75 mm wide, obscurely constricted above the middle, with the apex rose, rounded, the disc shallowly sulcate, the base subcordate, hinged beneath; **column** white, semiterete, 3.5 mm long, the foot 2.5 mm long, with an incurved extension.

BOLIVIA: **Cochabamba**: Chapare, epiphytic on mossy trees northeast of Cochabamba toward Villa Tunari, alt. 2600 m, 26 Nov. 1978, *C. Luer, J. Luer et al. 3472* (Holotype: SEL); same area, alt. 2900 m, 22 Jan. 1980, *C. Luer, J. Luer & R. Vásquez 4872* (SEL); same area, alt. 2800 m, 14 Nov. 1992, *C. Luer, J. Luer, R. Vásquez, D. Ric & W. Teague 16419* (MO). **La Paz**: Sud Yungas: cloud forest east of Unduavi, alt. 3100 m, 21 Jan. 1984, *C. Luer, J. Luer & R. Vásquez 9416* (AMES, SEL); Nor Yungas, road to Coroico, Aug. 1991, cultivated in Quito, Dec. 1991, *A. Hirtz 5673* (MO).



This species is found relatively frequently in the high-altitude, moss-laden cloud forests on the northern slopes of the Andes of northern and central Bolivia where it is endemic. It grows intermixed with *M. scandens* and *M. yungasensis*.

Masdevallia nebulina is distinguished by the small, white flower suffused with brown at the base. A conspicuous mentum is formed with the column foot. The slender, yellowish tails are about as long as the sepaline tube.

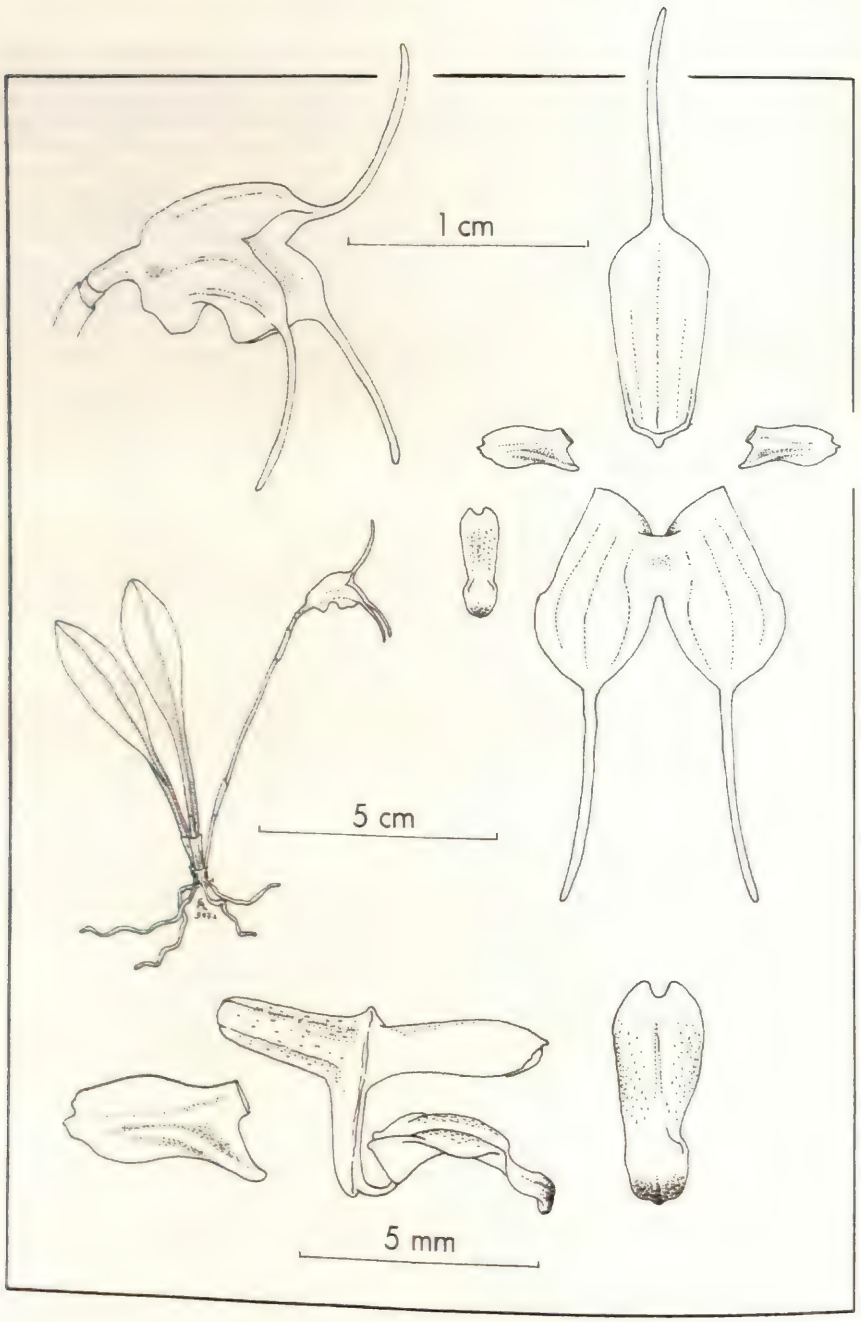


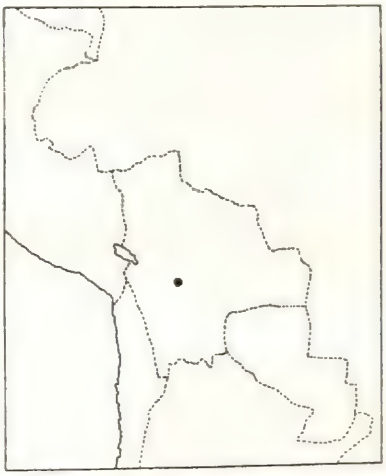
Plate 319. Masdevallia nebulina

Masdevallia nitens Luer, Selbyana 2: 376, 1978.

Ety: From the Latin *nitens*, "shining," in allusion to the polished appearance of the flowers.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-3.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 5-8.5 cm long including the petiole 2-3 cm long, the blade narrowly elliptical, subacute to obtuse, 1-1.5 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a solitary, colorful flower, borne by an erect, slender peduncle 5-8 cm long, with a bract near the base, from near the base of the ramicaul; floral bract tubular, 8 mm long; pedicel 13-15 mm long; ovary greenish white, dotted with black, 5 mm long; **sepals** fleshy, rigid, glabrous, shining, the dorsal sepal yellow with 3 red-purple veins, narrowly oblong-cymbiform, carinate, 20 mm long, 6 mm wide expanded, connate to the lateral sepals for 12 mm to form a curved, cylindrical tube, the free portion triangular, the acute apex contracted into a yellow-orange, forwardly directed and decurved, slender tail 15-17 mm long, the lateral sepals purple-brown with darker purple veins, oblong, oblique, 15 mm long, 6 mm wide, connate 9 mm and forming an acute mentum beneath the column-foot, the free portions ovate-falcate, the acute apices contracted into slender, decurved tails 15 mm long; **petals** white, oblong, 6.5 mm long, 1.5 mm wide, the apex truncate, irregularly tridentate with the upper tooth incurved, the labellar margin with a longitudinal carina, produced into a thick, incurved, uncinate process at the base, the processes of the 2 petals meeting in the midline above the base of the lip; **lip** red-purple, narrowly oblong-ligulate, 7 mm long, 1.75 mm wide, the apex acute, minutely verrucose centrally, the base subcordate, hinged beneath; **column** white, marked with red, semiterete, 5 mm long, the foot 3 mm long, with a slender, incurved extension.

BOLIVIA: **Cochabamba**: Chapare, epiphytic in cloud forest between Cochabamba and Villa Tunari, alt. ca. 2500 m, Feb. 1973, collected by Janet Kuhn, cultivated at J & L Orchids, Easton, CT, 7 June 1978, *C. Luer 2925* (Holotype: SEL); between Cochabamba an Villa Tunari, alt. 2500 m, 26-30 Nov. 1979, *C. Luer, J. Luer, F. Fuchs et al. 3547* (AMES, SEL); same area, alt. 2700 m, *C. Luer, J. Luer, R. Vásquez, D. Ric & W. Teague 16424* (MO).



This species occurs uncommonly in the same habitat of cool, moist cloud forest on the northern slope of the Andes in central Bolivia as the locally abundant *M. chaparensis*. Although vegetatively similar to many of the medium-sized species of the genus, the small flowers of *M. nitens* are easily distinguished. The rigid, curved, sepaline tube is purple-brown and glossy, as if varnished, with the top portion occupied by the dorsal sepal yellowish and striped in purple. The three, slender, orangish tails are decurved. Deep within the sepaline tube the hooklike processes of the two petals meet over the base of the narrowly oblong, acute lip.

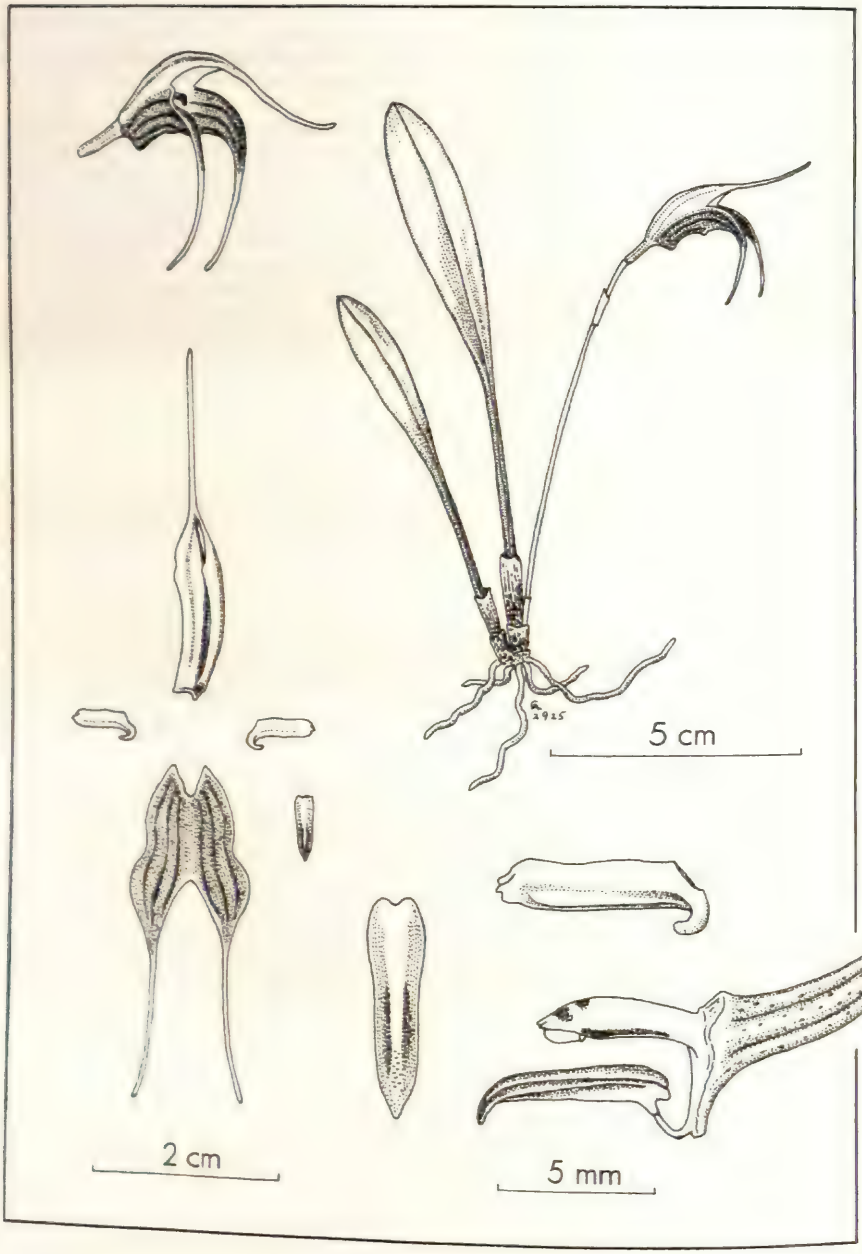


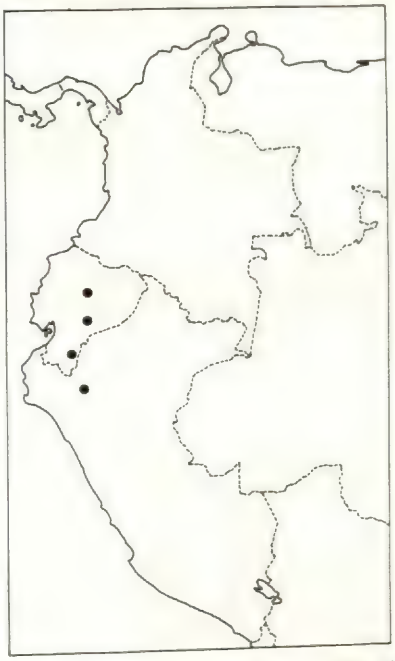
Plate 320. Masdevallia nitens

Masdevallia norops Luer & Andreetta, Phytologia 39: 214, 1978.

Ety.: From the Greek *norops*, "bright, gleaming," referring to the bright yellow and orange flowers.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 2-4 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 6-16 cm long including the 3.5-7 cm long petiole, the blade elliptical, subacute, 1.6-2.4 cm wide, the base cuneate into the slender, channeled petiole. **Inflorescence** a solitary flower produced by an erect, slender peduncle 6-10 cm long, with a bract below the middle, from low on the ramicaul; floral bract 12-14 mm long; pedicel 20-22 mm long; ovary dark brown, pitted, 7-10 mm long; **sepals** light yellow, suffused with bright orange, shiny glabrous externally, shortly pubescent within above the middle, the margins minutely ciliate-erose, channeled along the midvein, the dorsal sepal elliptical-ovate, deflexed, 17-18 mm long, 11 mm wide, connate to the lateral sepals for 5 mm to form a broad, shallow cup, the acute apex produced into an erect, green tail ca. 3 cm long, the lateral sepals strongly falcate with the acute apices attenuated into the tails, 40 mm long including the tails, 5-6 mm wide, connate 5 mm to form a shallow secondary mentum, the lateral margins incurved; **petals** yellow, oblong, 7.5 mm long, 3 mm wide, the apex oblique, subacute, with a small apical lobule, the labellar half with a longitudinal callus ending in a subacute, retrorse tooth at the base; **lip** orange, oblong, 7 mm long, 3 mm wide, the apex acute, minutely pubescent above the middle, the disc with a pair of low, parallel calli, the base truncate, hinged below; **column** light yellow, semiterete, 5.5 mm long, the foot 3 mm long with a short, incurved extension.

ECUADOR: **Napo**: epiphytic in Valle de Quichos near Río Solada, alt. 1500 m, Jan. 1976, collected by A. Andreetta and A. Hirtz, cultivated in Cuenca, 5 Feb. 1978, *C. Luer 2469* (Holotype: SEL; clonotype: K); epiphytic in forests north of Baeza, alt. ca. 1500 m, 10 Aug. 1978, *C. Luer, J. Luer, A. Hirtz & A. Andreetta 3212* (SEL). **Morona-Santiago**: Cordillera del Cutucú, alt. 6,000 ft., 17 Nov.-5 Dec. 1944, *W. H. Camp E-1382* (NY); between Hatillo and 9 de Octubre, alt. 2800 m, collected by W. Teague, 14 Nov. 1985, cultivated at Colomborquídeas in Colombia, 17 Apr. 1988, *C. Luer 13207* (MO). **Zamora-Chinchipe**: epiphytic in cloud forest above Valladolid, alt. 1900 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10855* (MO); between Loja and Zamora, alt. 2250 m, 22 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13591* (MO). PERU: **Amazonas**: Bongará, Venceremos, epiphytic in tall trees, alt. 1500 m, Aug. 1983, *W. Königer, H. Königer & M. Arias K-90a* (K, M, MO, SEL, USM, W, USM, Herb. H. Königer).



This spectacular species is distributed locally in the cloud forests of eastern Ecuador and northern Peru. It is one of many discoveries of Father Andreetta. It is characterized by an elliptical, long-petiolate leaf and a unique, bright orange flower held somewhere near the middle of the leaf. The sepals are comparatively fleshy and rigid for the section. The blade of the dorsal sepal is convex and more or less horizontal with the acute apex reflecting the long tail upward. The lateral sepals are rigidly concave, narrow and falcate, more or less crossing. The petals are callous above the lower margin with a short, blunt tooth at the base. The lip is oblong, acute, and arcuate.

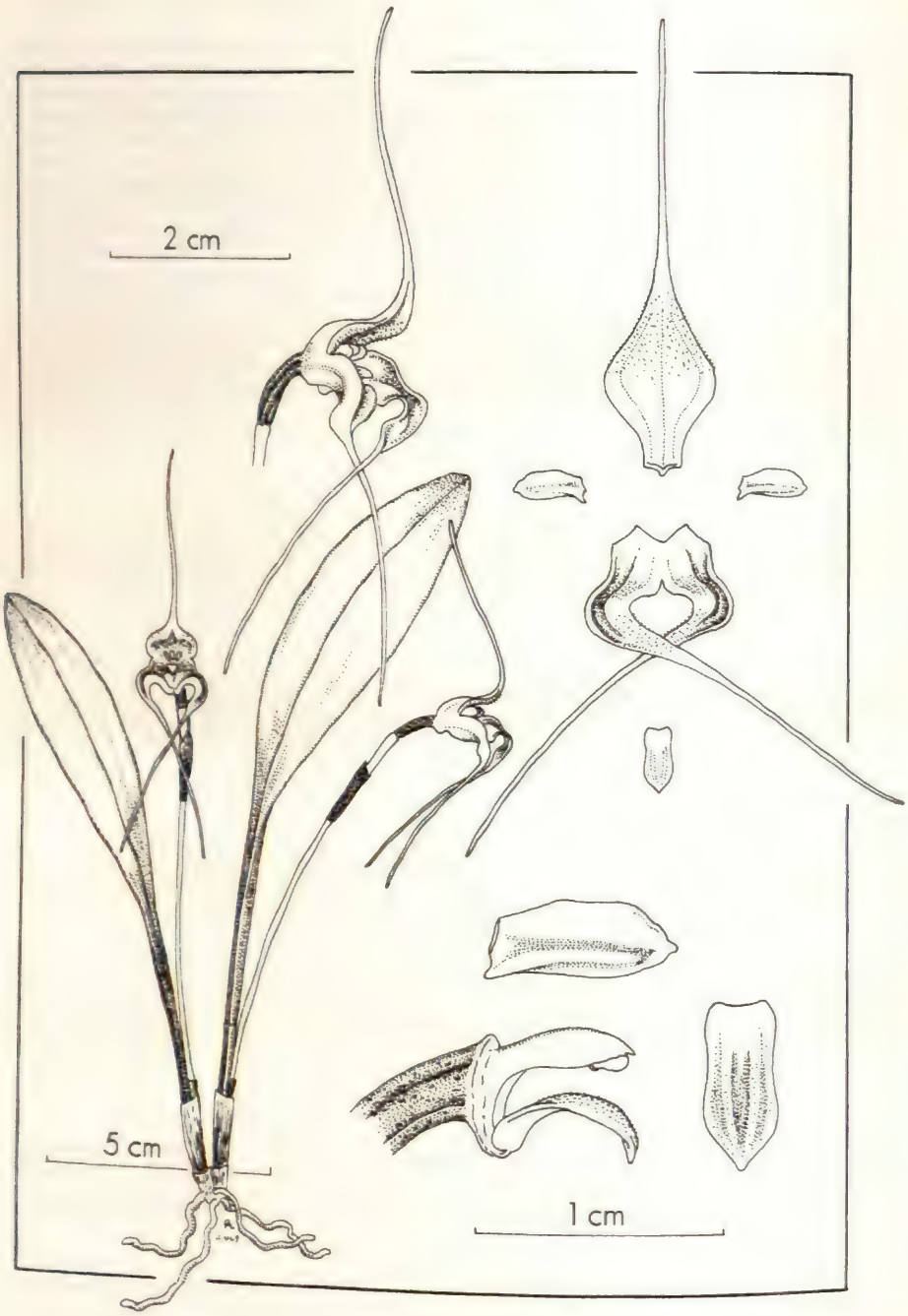


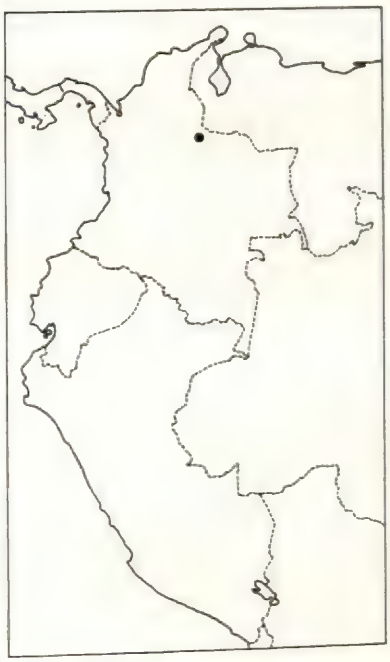
Plate 321. Masdevallia norops

Masdevallia odontocera Luer & Escobar, Selbyana 7: 73, 1982.

Ety.: From the Greek *odontoceras*, "a tusk," in allusion to the tusklike tails of the lateral sepals.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, blackish, 1.5-3.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect to suberect, coriaceous, 6-15 cm long including the petiole 2-5 cm long, the blade elliptical, acute, 1.5-2.5 cm wide, cuneate below into the slender, blackish petiole. **Inflorescence** a solitary, showy flower borne by a suberect, slender peduncle 1.5-4.5 cm long, with a bract at the base, from low on the ramicaul, 2-3 flowering peduncles sometimes produced simultaneously; floral bract 4-7 mm long; pedicel 4-7 mm long; ovary 5 mm long; **dorsal sepal** yellow with 3 prominent, purple stripes along the veins, red-pubescent within, obovate, 15 mm long, 9 mm wide, connate 12 mm to the lateral sepals to form a sepaline tube, the apex obtuse, contracted into a slender, antrorse, yellow tail 1.5-2 cm long; **lateral sepals** white, suffused with purple above the orange base, with 3 darker purple stripes along the veins, red-pubescent within, ovate, oblique, 25 mm long, 9 mm wide, connate 8 mm to form a shallow secondary mentum, the acute apices attenuated into diverging, lightly upcurved, slender, white tails 2-2.5 cm long; **petals** white, oblong, 6.5 mm long, 3 mm wide, the truncate apex bilobed, with a longitudinal callus along the lower margin ending in an acute, retrorse tooth longer than the unguiculate base of the petal; **lip** white, flecked with purple, 7.5 mm long, 3.2 mm wide, ovate, truncate at the apex with the purple, obtuse margin recurved, the base narrow, concave on the end, hinged beneath, the disc very shallowly channeled; **column** white with purple margins, slender, semiterete, 6 mm long, the foot 3 mm long with a slender, incurved extension.

COLOMBIA: **Norte de Santander**: epiphytic in cloud forest, Alto de Santa Inés, alt. 2050 m, 23 May 1982, *C. Luer, R. Escobar & D. Portillo 7933* (Holotype: SEL; Isotypes AAU, COL, JAUM); same area, alt. 2100 m, 13 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10362* (MO); Region de El Sarare, between Alto de El Oro and Alto de Santa Inés, alt. 1800-2200 m, 1941, *J. Cuatrecasas, R.E. Schultes & E. Smith 12400* (COL).



Although locally abundant, this species is apparently endemic in the Eastern Cordillera of Colombia where it was first collected in 1941 by the team of J. Cuatrecasas, Richard Schultes, and Elmer Smith, noted botanical illustrator. Plants grow on mossy branches and trunks of small trees in dense, moist forests.

Vegetatively indistinguishable from numerous other small species of Masdevallias, *M. odontocera* is characterized by the single, short-pedunculate, showy flower with prominent purple stripes on a yellow dorsal sepal and rose-purple lateral sepals. The lateral sepals are narrowly acute and acuminate into white, upswept tails that are longer than the decurved tail of the dorsal sepal.

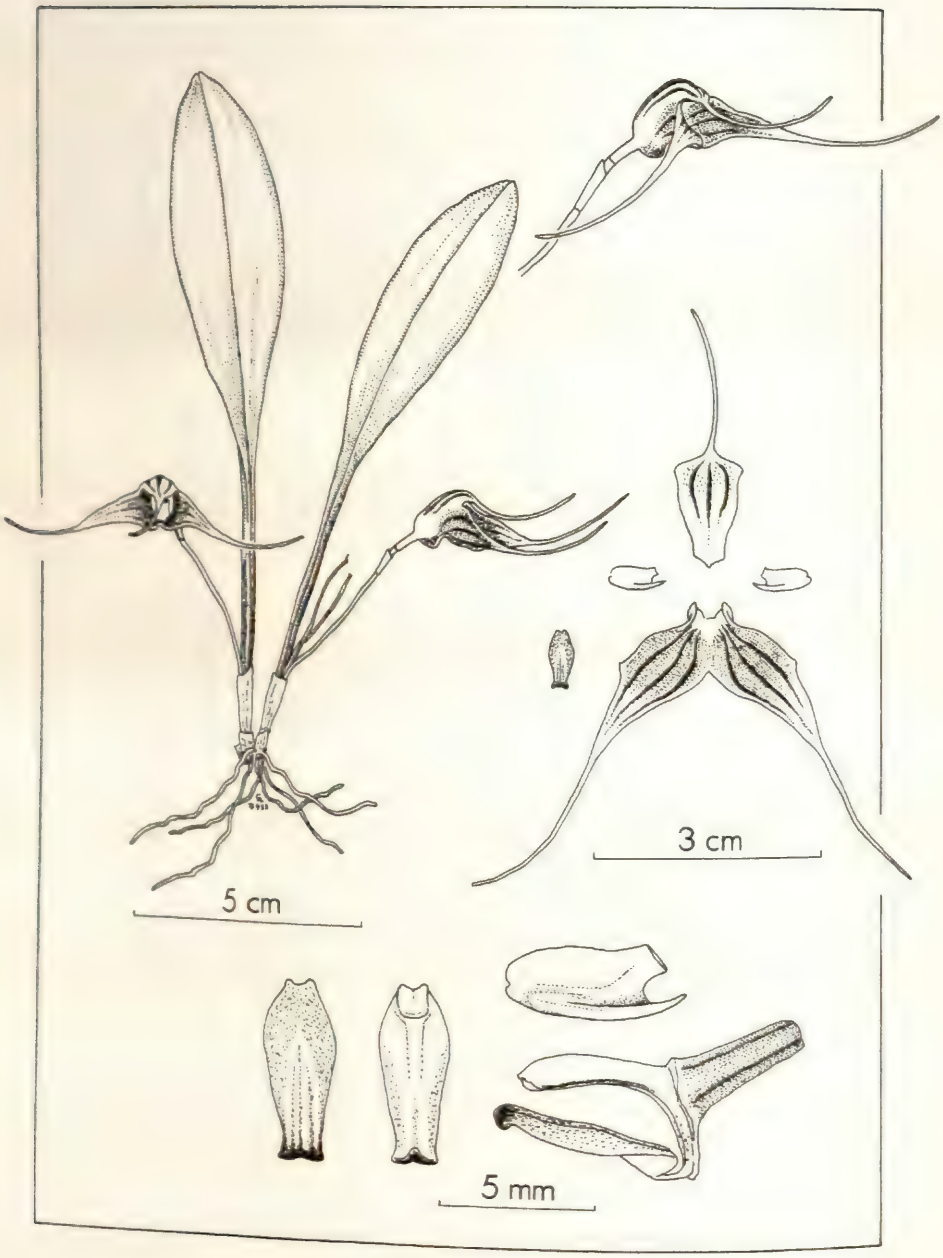


Plate 322. Masdevallia odontocera

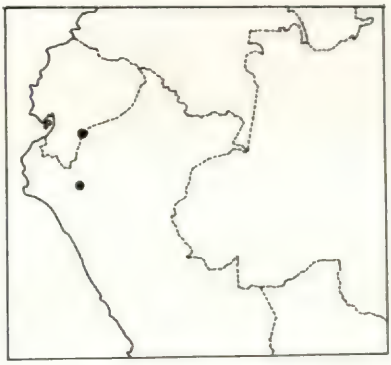
Masdevallia os-viperae Luer & Andreetta, Lindleyana 4: 119, 1989.

Ety.: From the Latin *os viperae*, "the mouth of a snake," in fancied allusion to the flower.

Syn.: *Masdevallia rana-aurea* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 76: 151, 1999.

Ety.: From the Latin *rana aurea*, "golden frog," as called by Andrés Maduro.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 5-9 cm long including the petiole 1-2.5 cm long, the blade elliptical-ovate, acute, 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by a slender, suberect peduncle 3-5 cm long, with a bract above the base, from the base of a ramicaul; floral bract tubular, 5-8 mm long; pedicel 6-8 mm long; ovary 4-6 mm long; **sepals** red-brown to golden yellow, nearly glabrous to densely short-pubescent, the dorsal sepal oblong-obovate, 14-19 mm long, 9 mm wide, the apex obtuse, contracted into a slender tail 25-30 mm long, connate to the lateral sepals for 11-15 mm into a slightly compressed, horizontal, infundibular tube, the lateral sepals suboblong, oblique connate 15 mm into a widely expanded, bifid lamina, 22-30 mm long, 18-24 mm wide, the apices obtuse, contracted into slender tails 15 mm long; **petals** white, cartilaginous, oblong, 6-8 mm long, 2.5 mm wide, the apex subtruncate, the labellar half with a longitudinal callus ending in a retrorse process above the base; **lip** white, narrowly oblong, 7 mm long, 2 mm wide, the apex thin, subacute to obtuse, the disc with a flat basal callus that forks into a subparallel, longitudinal pair of calli, shallowly sulcate between, the base truncate, hinged beneath; **column** white, semiterete, 5-6 mm long, the foot 3 mm long including a slender, incurved extension.



ECUADOR: **Morona-Santiago**: Cordillera del Condor, Río Tuntaime, collected by A. Andreetta, M. Portillo & L. Morocho 1710, collected Apr. 1987, cultivated by A. Andreetta at Paute, 24 Jan. 1989, *C. Luer 14058* (Holotype: MO); Cordillera del Condor, alt. 1600 m, cultivated at Ecuagenera, Gualaceo, Oct. 2000, *J. Portilla 1131* (MO).

PERU: Without collection data, obtained from J. Meza T., cultivated by Maduro's Tropical Flowers, Cerro Punta, Panamá, 16 November 1998, *C. Luer 18976* (holotype of *M. rana-aurea*: MO).

This species occurs uncommonly in southeastern Ecuador and nearby Peru, varying in details not deemed significant. The leaves are acute and petiolate. The color of the flowers varies from golden yellow to red-brown. The sepaline tube with a shallow ventricosity is held transversely, similar to *M. strobelii*. The lateral sepals are broadly expanded beyond the tube with forwardly directed tails. The marginal callus of the petals ends in an acute, retrorse process. The lip is narrowly oblong and channeled between longitudinal calli.

The specific epithet is a misnomer as Padre Andreetta points out, because the flower is beautiful and does not resemble the head of a snake. I offer my apologies.

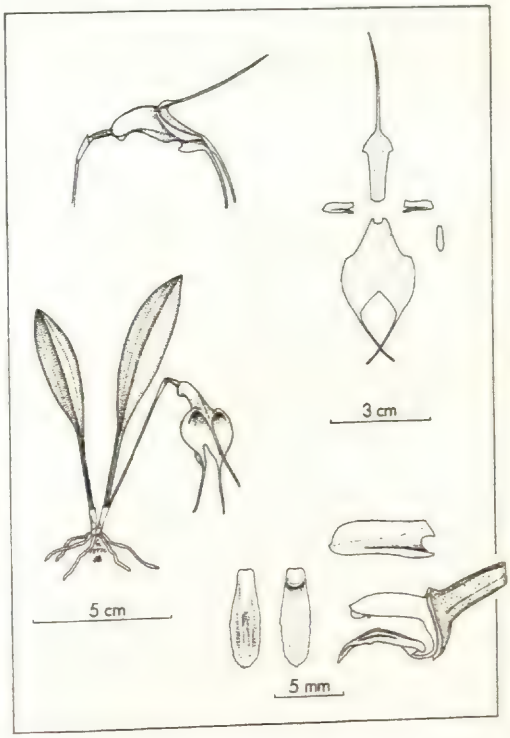


Plate 323. Masdevallia os-viperae

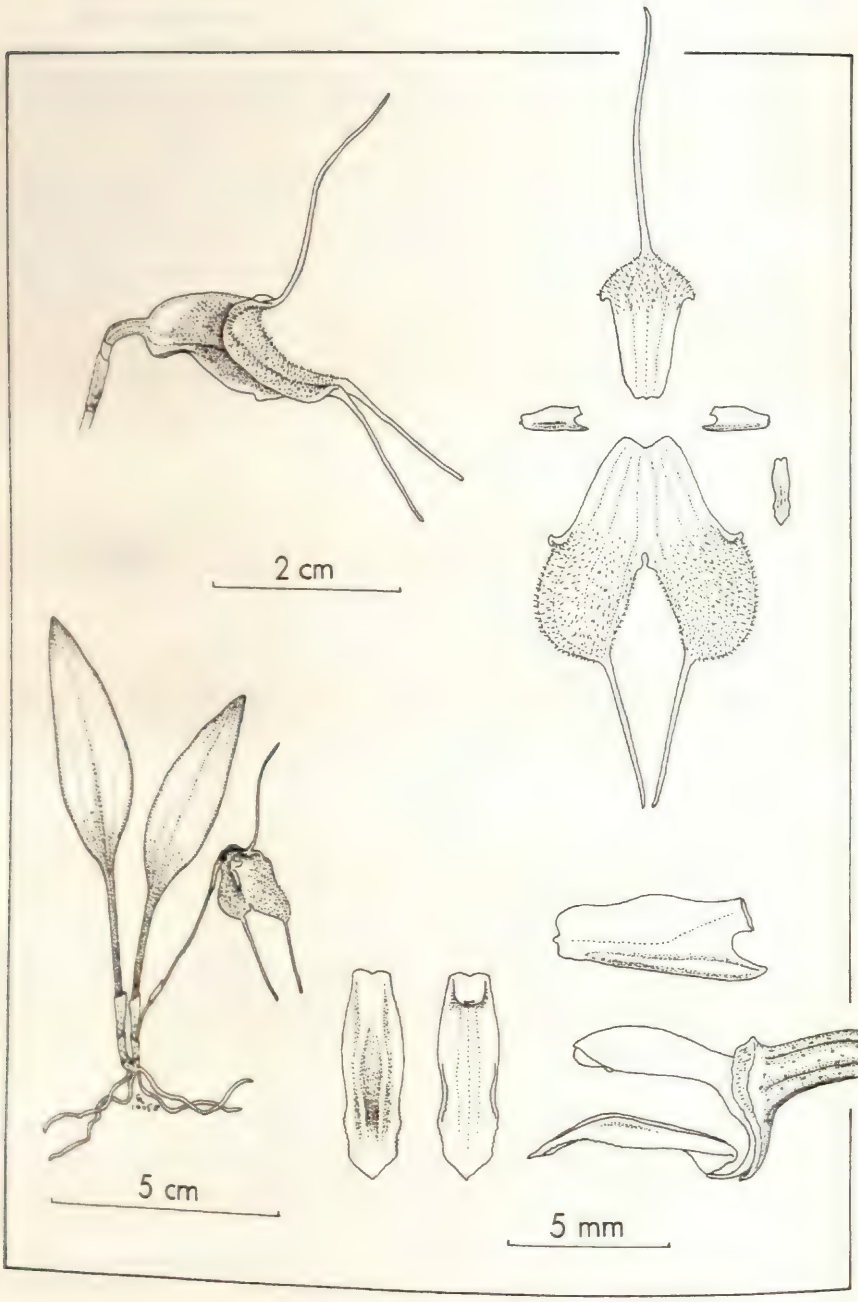


Plate 324. Masdevallia os-viperae

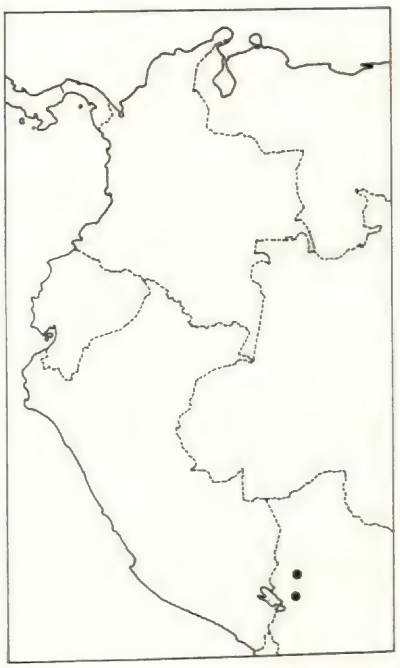
Masdevallia paivaëana Rchb.f., Xenia Orchidaceae 3: 25, 1881.

Ety.: Named in honor of Sr. Castello de Paiva of Bolivia at the request of Mandon in gratitude for his help in collecting plants in Bolivia.

Syn.: *Masdevallia aspera* Rchb.f. ex Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 82, 1925.
Ety.: From the Latin *asper*, "rough," referring to the verrucose lip.

Plant medium in size, epiphytic, repent; roots stout. Ramicauls stout, ascending to erect, 2.5-4.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 4-10 cm long including the petiole 1.5-4 cm long, the blade narrowly elliptical, obtuse to subacute, 1.5-2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a solitary flower borne by an erect or suberect, slender peduncle 4-9 cm long, with a bract below the middle, from low on the ramicaul; floral bract thin, tubular, 7-10 mm long; pedicel 12-15 mm long; ovary 5-6 mm long; **sepals** white, suffused with yellow, or orange, suffused with purple, densely pubescent within, the blade of the dorsal sepal obovate, 14 mm long, 6 mm wide, connate to the lateral sepals for 9-10 mm to form a cylindrical tube, the rounded free portion abruptly contracted into a slender, yellow tail 9-16 mm long, the lateral sepals ovate, oblique, 13 mm long, 5 mm wide, connate for 7 mm, the ovate, subacute free portions contracted into slender tails 8-14 mm long; **petals** white, oblong, 5.5 mm long, 2 mm wide, the truncate apex lobulate, notched or erose, the labellar half with a longitudinal callus ending in a thick, antrorse or retrorse, descending process at the base; **lip** yellow, suffused with orange, elliptical-oblong, 5.5 mm long, 2.5 mm wide, the disc with a low pair of longitudinal calli, the apex obtuse, with a low callus in the middle, the base truncate, hinged below; **column** yellow-white, semiterete, 5 mm long, the foot 3 mm long with a slender, incurved extension.

BOLIVIA: **La Paz**: Larecaja, near Sorata, Cerro Iminapi, alt. 2650-2750 m, Mar.-July 1860, *G. Mandon 1150* (Holotype: W; Isotypes: AMES, BM, BR, G, K, LE, NY, P, S); same area, *E. Günther 24* (HBG); beyond Sorata, alt. 2500 m, 20 Jan. 1981, *C. Luer, J. Luer, B. Würstle, S. Würstle & R. Vásquez 5676, 5683* (SEL); Cerro Iminapi, along Río Chinchine, below Sorata, alt. 2350 m, 17 Nov. 1992, *C. Luer, J. Luer, R. Vásquez, D. Ric, J. Del Hierro & W. Teague 16426* (MO); along Río Challapampa, below Sorata, alt. 2400 m, 17 Nov. 1992, *C. Luer, J. Luer, R. Vásquez, D. Ric, J. Del Hierro & W. Teague 16427* (MO); Saavedra, along river below Charazani, alt. 2630 m, 19 Nov. 1992, *C. Luer, J. Luer, R. Vásquez, D. Ric, J. Del Hierro & W. Teague 16431* (MO); Charazani, below La Playa, alt. 2600 m, 5 May 1993, *P. Gutte & B. Herzog 715* (LZ); without locality, "Yungas," *Roezl s.n.* (holotype of *M. aspera*: W).



For many years the identity of this species had been in confusion, several other Bolivian species having been reduced to its synonymy. *Masdevallia paivaëana* grows abundantly in the forests of Bolivia north of La Paz. It is a shortly repent species with relatively small flowers, about the size of those of *M. floribunda*, as Reichenbach wrote in his original description. The pleasantly fragrant flowers are white to rose-colored and conspicuously pubescent within, but not mentioned in his original description made from dried specimens. The densely pilose sepals are mentioned in the description of *M. aspera*. Reichenbach apparently had realized that this was the same species, but it was published by Kränzlin after Reichenbach's death.

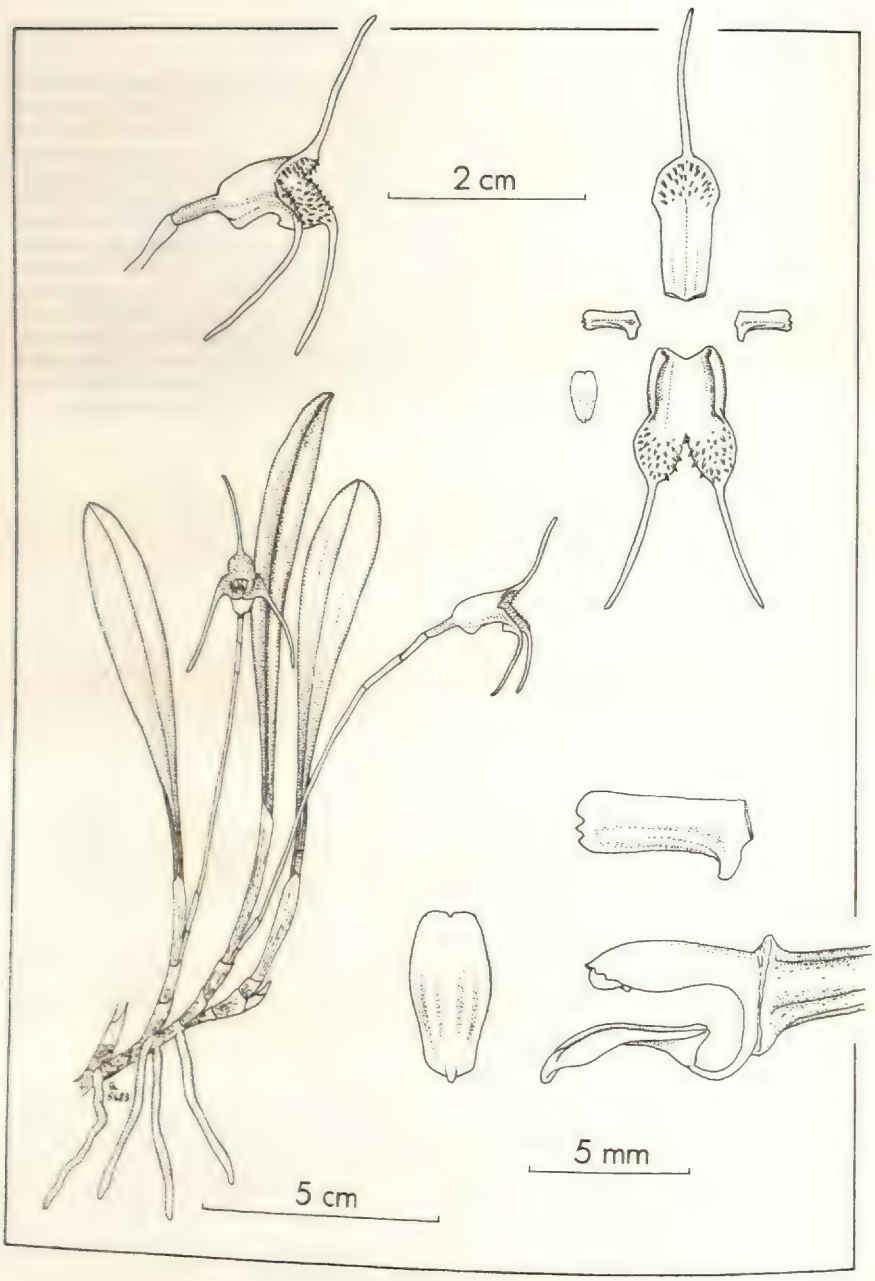


Plate 325. Masdevallia paivaëana

Masdevallia patriciana Luer, Phytologia 39: 219, 1978.

Ety.: Named in honor of Sra. Patricia Cevallos de Malo of Cuenca, Ecuador, wife of Dr. Benigno Malo who discovered this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 4-6 mm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 2.5-3 cm long including the petiole 1-2 cm long, the blade elliptical-obovate, obtuse, 0.8-1 cm wide, cuneate below into the slender, blackish petiole. **Inflorescence** a solitary, multicolored flower borne by a slender, erect to suberect peduncle 1.5-2 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular 4 mm long; pedicel 6 mm long; ovary 2.5 mm long; **sepals** membranous, the dorsal sepal yellow-orange below the middle, suffused with purple above the middle, glabrous except for a small area of microscopic pubescence within near the apex, subquadrate, concave, subcarinate, 6 mm long, 5 mm wide, connate to the lateral sepals for 5 mm to form a short, broad, gaping, suborbicular cup, the apices transversely obtuse, abruptly contracted into a slender, erect, yellow tail ca. 2 cm long, the lateral sepals white, suffused with purple laterally and rose anteriorly, connate 5 mm into a concave, oblong lamina, 7 mm long, 6 mm wide unexpanded, forming a broad, deep mentum, the apices obtuse, contracted into slender tails ca. 2 cm long; **petals** translucent white, oblong, 4 mm long, 2 mm wide, the apex truncate, tridenticulate, the labellar margin with a longitudinal callus, produced into an uncinate, incurved process above the base; **lip** white, dotted with purple, ovate, 4.5 mm long, 2 mm wide, narrowed above the middle to the acute, white apex, the disc with a pair of indistinct, longitudinal calli, the base truncate, hinged beneath; **column** yellowish white with purple margins, semiterete, 4 mm long, the foot 3 mm long with an incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in cloud forest of the eastern slopes of the Andes, alt. 2300 m, collected by B. Malo, 1974, cultivated at Tarqui, 15 July 1977, *C. Luer 1710* (Holotype: SEL); same collection, cultivated at Tarqui, 25 May 1988, *C. Luer 13681* (MO); Saraguro trail to Jamboe, alt. 2800 m, collected and cultivated 1995, *A. Hirtz 6136* (MO).

This dainty little species with multicolored flowers was discovered on the slopes of the Andes east of Cuenca by Benigno Malo. The exact locality has not been revealed lest collectors deplete the population.

Vegetatively, *M. patriciana* is not distinct from most of the other small species in the genus. The little flowers are subglobose, formed by deeply connate, inflated sepals. The laterals form a broad, prominent, white mentum that contrasts with the purples and orange above. Although not as distinctly encephaloid as some of the other species, the inflated tube with a somewhat narrower orifice is surrounded by the obtuse apices of the sepals that are abruptly contracted into slender tails longer than the tube.

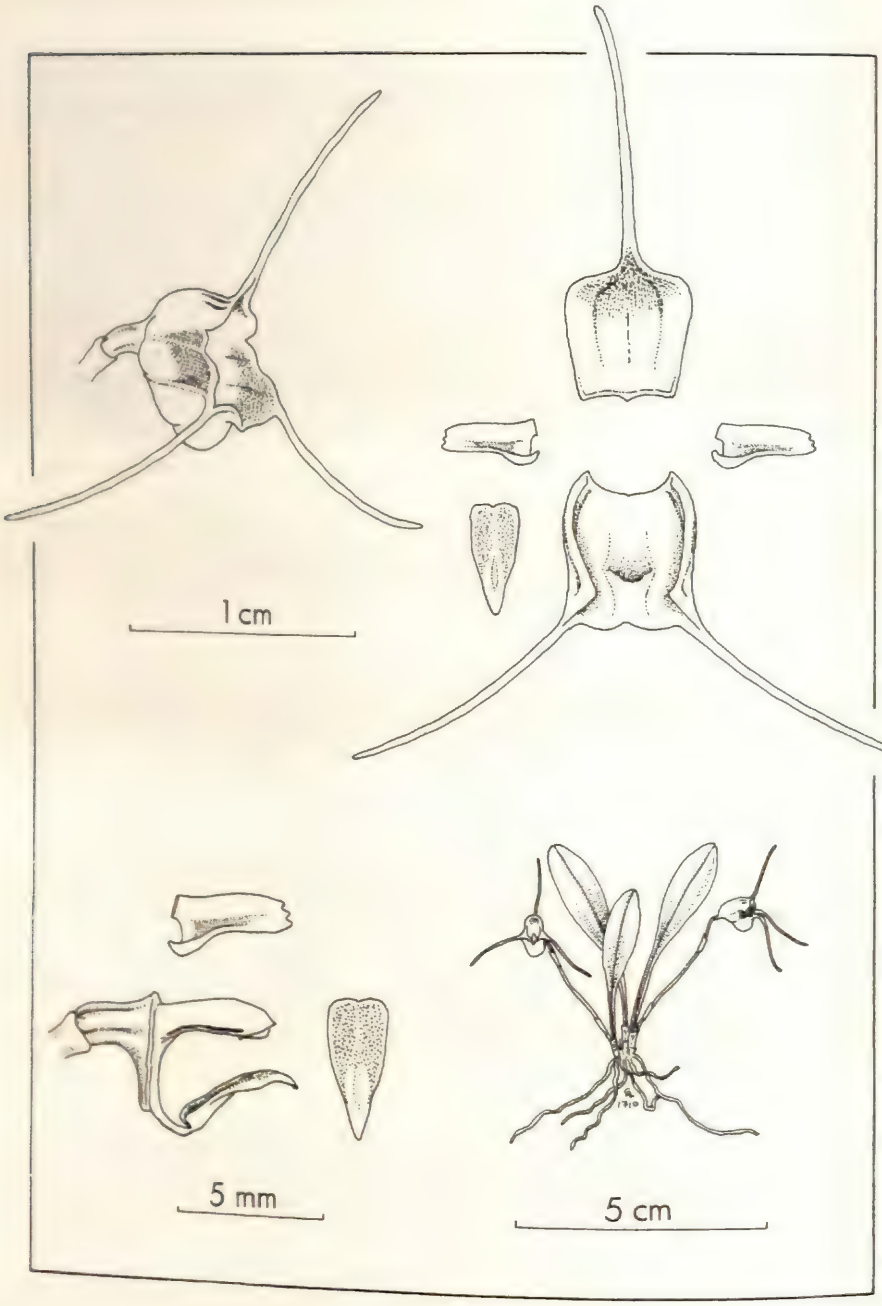


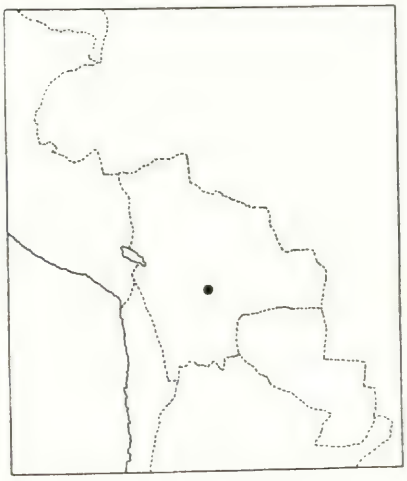
Plate 326. Masdevallia patriciana

Masdevallia phacopsis Luer & Dalström, Lindleyana 9: 245, 1994.

Ety.: From the Greek *phakopsis*, "freckled," in reference to the numerous dots on the sepals.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, blackish, 10-13 mm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 2-4 cm long including a petiole 1-2 cm long, the blade elliptical, subacute, 0.8-1 cm wide, cuneate below into the slender, blackish petiole. **Inflorescence** a single flower, borne by a slender, erect peduncle 10-15 mm long, with a thin bract near the base, from near the base of a ramicaul; floral bract tubular, 4-5 mm long; pedicel 5-7 mm long; ovary 2 mm long; **sepals** fleshy, subcarinate along the midveins, dull orange with multiple small spots, glabrous, the dorsal sepal oblong, concave, the blade 7 mm long, 3 mm wide, connate to the lateral sepals for 5 mm to form a cylindrical tube, the free portion transversely subacute, contracted into a stout, forwardly directed, orange tail 5-6 mm long, the lateral sepals obovate, obtuse, oblique, 6 mm long, 4 mm broad, connate 4 mm into a concave lamina, forming a prominent mentum below the column-foot, the apices contracted into stout, forwardly directed tails similar to that of the dorsal sepal; **petals** white, more or less oblong, with the apex acute, obliquely notched, 4 mm long, 1 mm wide, the labellar margin with a longitudinal callus ending in an obliquely descending process at the base; **lip** dark purple, oblong, rigidly arcuate, 4.5 mm long expanded, 1.8 mm wide, the apex acute, deflexed, the disc shallowly sulcate, the base notched, hinged beneath; **column** white, stout, semiterete, 3 mm long, the foot 1.5 mm long with a slender, incurved extension.

BOLIVIA: **Santa Cruz**: epiphytic in moist forest near Karahuasi, alt. 2250 m, collected Jan. 1994 by S. Dalström and J. Sönnemark, cultivated by Sönnemark in Halmstad, Sweden, 13 Aug. 1994, *C. Luer 17237* (Holotype: MO); between Comarapa and Epizana, alt. 2600 m, collected 2 June 1996, cultivated by J. Sönnemark in Halmstad, Sweden, *S. Dalström 2271* (MO).



This small species is locally abundant and apparently endemic in the southernmost part of the range of the genus in central Bolivia. It occurs in cool, wet, virgin forests at a moderately high altitude. It is distinguished by short, elliptical blades of long-petiolate leaves. The little, dull orange flowers, diffusely covered with tiny dots, are produced singly on short peduncles. The petals are acute and the deep purple lip is rigidly arcuate.

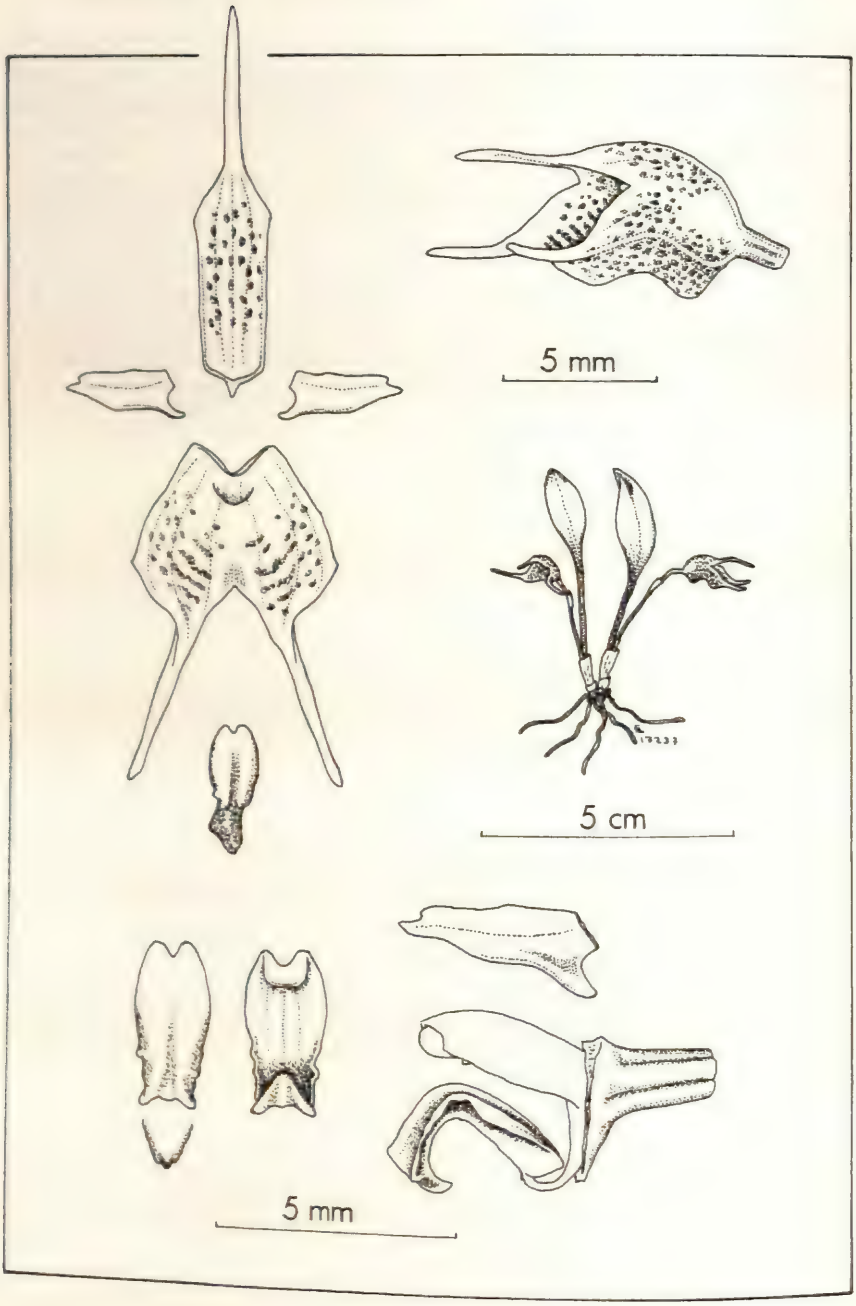


Plate 327. Masdevallia phacopsis

Masdevallia picta Luer, Phytologia 39: 223, 1978.

Ety.: From the Latin *pictus*, "painted, colored," in reference to the multicolored flowers.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 3-8 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 5-18 cm long including the petiole 2-6 cm long, the blade elliptical, subacute, 1.5-3.2 cm wide, the base cuneate into the slender petiole. **Inflorescence** a single flower borne by a slender, erect peduncle 5-10 cm long, 2-4 often appearing simultaneously, with a bract near the base, from high on the ramicaul; floral bract tubular, 8-10 mm long; pedicel 10-16 mm long; ovary 5 mm long; **dorsal sepal** white, suffused with orange toward the base, suffused with bright rose on either side of the carinate midvein, obovate, 10 mm long, 4-5 mm wide, connate to the lateral sepals for 6-7 mm to form a cylindrical tube, the free portion triangular, the acute apex contracted into a bright orange, slender tail 2.5-3.5 cm long; **lateral sepals** white above the middle, bright purple below the middle, narrowly ovate, 30-45 mm long including the tails, 5 mm wide, connate 8 mm to form a shallow secondary mentum, the acute free portions gradually narrowed into slender, orange tails; **petals** white, marked with purple along the callus, oblong, 4.5 mm long, 2 mm wide, the truncate apex shallowly tridentate, the lower margin with a longitudinal, thick callus ending in a short, acute tooth at the base; **lip** white, minutely speckled with purple, oblong-subpandurate, 5 mm long, 2 mm wide, the apex rounded, the disc with a pair of low, longitudinal calli, the base truncate, shallowly retuse, hinged beneath; **column** white, marked with purple, semiterete, 4 mm long, the foot short with a short, incurved extension.

ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest east of Loja, alt. 2800 m, Sept. 1972, collected by B. Malo, cultivated at Tarqui near Cuenca, 13 July 1977, *C. Luer 1694* (SEL). **Loja**: epiphytic in cloud forest east of Yangana, alt. 2850 m, 4 Mar. 1982, *C. Luer, A. Andreetta, S. Dalström & D. D'Alessandro 7158* (SEL); Cerro Toledo, southeast of Yangana, alt. 3000-3200 m, 6 Apr. 1985, *G. Harling & L. Anderson 23803* (AMES, GB); Cajanuma Range, alt. 2750 m, 21 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10755* (MO); Chuguiribamba, alt. 2800 m, 7 May 1882, *E. André 449* (K, P); "Saraguro," alt. 2800 m, Feb. 1995, *A. Hirtz 6178* (MO); Chuquiribamba, alt. 2800 m, 7 May 1882, *Poortmann 449* (P). PERU: **Cajamarca**: Jaen, Río Tabaconas, collected by J. Campoverde, 1984, exported by M. Arias A-318a, cultivated by *W. Königer WK-23* (K, M, USM, W, Herb. H. Königer).

This species is locally abundant, but confined to high, cool, moist, cloud forests of southeastern Ecuador and northern Peru. In common with some other species from high altitudes (near 3000 meters above sea level) *Masdevallia picta* refuses to grow and flower well, if at all, in greenhouse conditions.

In natural conditions, usually several, single, multicolored flowers with narrow sepaline tubes are borne simultaneously on slender peduncles from high on the ramicaul. The flowers are white, but suffused with orange and purple. The callus of the oblong lip ends with a short point at the base, and the lip is oblong and shallowly channeled.

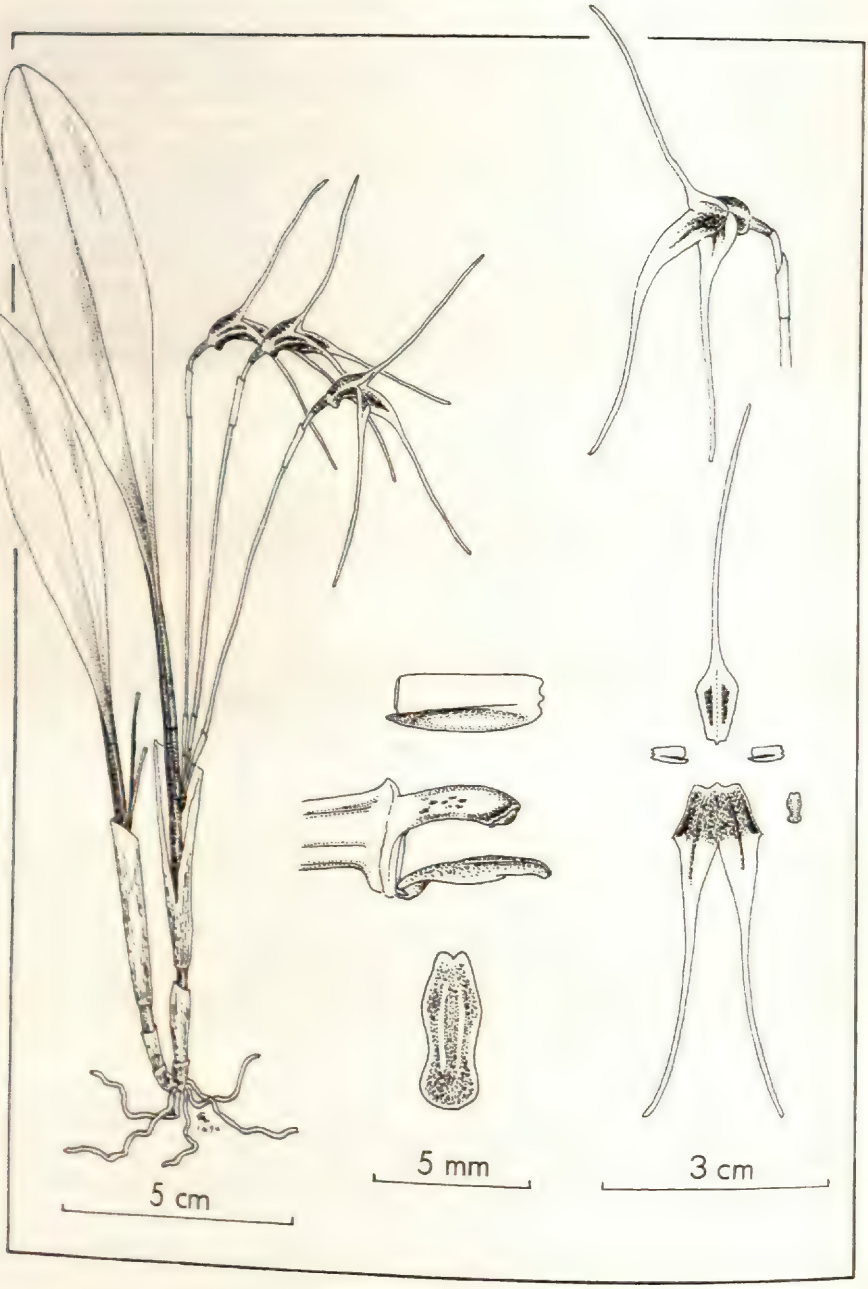


Plate 328. Masdevallia picta

Masdevallia popowiana Königer & J.G. Weinm., Arcula 5: 127, 1996.

Ety: Named for Nebojscha Popow who imported this species.

Plant small to medium in size, presumably epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 5-9 cm long including the petiole 1.5-2.5 cm long, the blade elliptical-obovate, subacute to obtuse, 1.75-2.5 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle 5-6.5 cm long, with a bract above the base, from low on the ramicaul; floral bract 7-8 mm long; pedicel 8-12 mm long; ovary green, 3-4 mm long; **sepals** white, with blackish spots and verrucae along the margins and apices of the lateral sepals, glabrous externally, the dorsal sepal suborbicular, deeply concave, 8 mm long, 7 mm wide unexpanded, pusticulate within, connate to the lateral sepals for 2-3 mm to form a subglobose, sepaline tube, the apex broadly rounded, abruptly contracted into an erect, stout, yellow tail 13 mm long, the lateral sepals connate 5 mm into a suborbicular, deeply concave synsepal, 7 mm long, 10 mm wide unexpanded, forming a conspicuous, conical, retrorse mentum below the column-foot, the obtuse apices contracted into stout, decurving tails 11 mm long; **petals** white, triangular, 4 mm long, 1.25-2.5 mm wide, the apex truncate, tridenticulate, the labellar margin callous with a triangular wing ending at the base; **lip** yellow with purple dots, obovate-oblong, with the apex obtuse, decurved, 5 mm long expanded, 3 mm wide, the sides slightly dilated and convex near the middle, the disc featureless, the base truncate, hinged beneath beyond the margin; **column** white, semiterete, 4 mm long, the foot 4 mm long including a long, slender extension.

PERU: **Amazonas**: without locality, imported by N. Popow, flowered in cultivation Dec. 1995, by J.G. Weinmann & E.B. Pfeifer, *W. Königer WK-58* (Holotype: M; Isotypes: K, UNALM, USM); without locality, received from M. Arias by J & L Orchids, flowered in cultivation 1996, *C. Luer 17826* (MO).

This species is apparently endemic in Amazonian Peru, from whence, without further information, it was imported and sold to the trade. It is characterized by elliptical, petiolate leaves and a solitary flower borne about as high as the tops of the leaves. The flower is subglobose, the dorsal sepal being deeply concave, and the synsepal also being deeply concave, but with a large, conspicuous, conical, retrorse mentum. The sepals are white with raised, blackish spots and warts along the margins. The tails are thick and about as long as the blades.

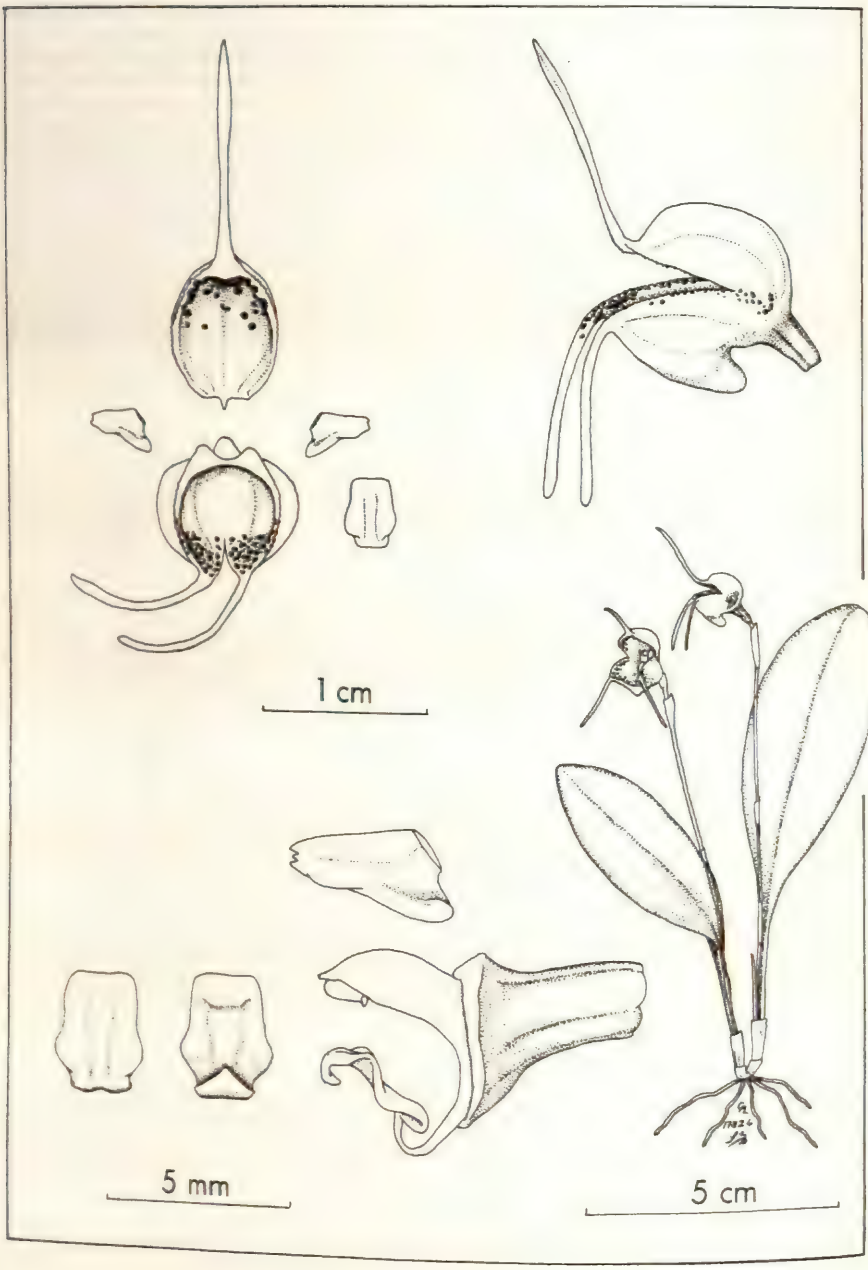


Plate 329. Masdevallia popowiana

Masdevallia pumila Poepp. & Endl., Nov. Gen. et Spec. 2: 6, t. 108, 1838.

Ety.: From the Latin *pumilus*, "dwarf," referring to the small habit of the plant.

Syn.: *Masdevallia filamentosa* Kraenzl., Bull. Misc. Inform. 105, 1925.

Ety.: From the Latin *filamentosus*, "filamentous," referring to the sepaline tails.

Syn.: *Masdevallia grandiflora* C.Schweinf., Bot. Mus. Leafl. 15: 26, t. 14, 1951.

Ety.: From the Latin *grandiflorus*, "with large flowers," referring to the proportionately large flowers.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 5-15 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, 6-10.5 cm long including the slender, indistinct, blackish petiole 2-3 cm long, the blade narrowly elliptical, acute, 0.7-1 cm wide, gradually narrowed below into the petiole. **Inflorescence** a single flower borne by a sub-erect, slender peduncle 2-4.5 cm long, with a thin sheath near the base, from low on the ramicaul; floral bract tubular, thin, 7 mm long; pedicel 9-12 mm long; ovary blackish, 3-4 mm long; **sepals** gray-white, sometimes lightly suffused with rose, glabrous, the dorsal sepal narrowly obovate, 10-12 mm long, 4-6 mm wide, connate to the lateral sepals for 5-7 mm to form a cylindrical tube, the free portion triangular with the acute apex gradually contracted into a filiform tail 20-35 mm long, the lateral sepals narrowly ovate, 12-18 mm long, 5 mm wide, connate 3-5 mm, the acute free portions gradually attenuated into filiform tails similar to that of the dorsal sepal; **petals** white, occasionally marked with purple, oblong, 3.5-4 mm long, 1-1.5 mm wide, the truncate apex entire to shallowly trilobed, the lower margin with a longitudinal callus ending in an obtuse angle or a short, free tooth between the middle and lower thirds; **lip** red to light brown, sometimes white, minutely speckled with purple, oblong, 3-4 mm long, 1.5 mm wide, the apex obtuse, sometimes cellular-glandular, the disc with a low pair of longitudinal calli, the base subcordate, hinged on the end; **column** white, edged in purple, semiterete, 3-4 mm long, the foot 1 mm long, with a short, incurved extension.

PERU: **Huánuco**: epiphytic in subandine forests near Cuchero, 1830, *Poeppig s.n.* (Holotype: W); **Cuzco**: Paucartambo, San Pedro to Santa Isabal, alt. 1350 m, 5 Dec. 1947, *C. Vargas 006778* (holotype of *M. grandiflora*: AMES; isotype: CUZ). **Pasco**: near Oxapampa, alt. 1800 m, 30-31 Jan. 1979, *C. Luer & J. Luer* (AMES, SEL).
COLOMBIA: **Cundinamarca**: Monte Redondo, alt. 1600-1700 m, 15 Dec. 1950, *M. Schneider 535* (S). **Cauca**: Pitalito between Santa Rosa and Mocoa, alt. ca. 1700 m, 17 June 1971, *P. Ortiz V. 442* (COL). **Putumayo**: Valle de Sibundoy, collected by O. Ospina. cultivated at Colomborquídeas, 8 May 1985, *C. Luer 11305* (MO).
ECUADOR: **Pastaza**: epiphytic in forest 20 km east of Puyo, alt. 900 m, 19 Mar. 1976, *C. Luer, J. Luer & P. Taylor 1023* (SEL). **Morona-Santiago**: in forests near Chiguinda, Andes east of Sigsig, alt. 1600-1800 m, *F.C. Lehmann 6520* (holotype of *M. filamentosa*: K); north of Gualaquiza, alt. 1600 m, 17 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13416* (MO, QCNE); north of Gualaquiza near Río Calagrás, alt. 1400 m, 4 Nov. 1982, *C. Luer, R. Escobar & D. D'Alessandro 8288* (SEL); between Gualaquiza and Indanza, alt. 1600 m, 20 Apr. 1985, *G. Harling & L. Andersson 24366* (GB); cloud forest between San Juan Bosco and Gualaceo, alt. 2350 m, 28 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10994* (MO); new road from Macas to Guamote, alt. 1900 m, 6 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12710* (MO); Cordillera del Cutucú, east of Mendez, alt. 1000 m, 5 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12660* (K, MO). **Zamora-Chinchipe**: Cordillera del Condor, Paquisha, alt. 1500 m, collected by H. Medina, cultivated at Ecuagenera, 5 Mar. 2001, *C. Luer 19662* (MO).
BOLIVIA: **La Paz**: Nor Yungas, northwest of San Pedro, 24 Feb. 1983, *J.C. Solomon 9536* (MO). **Cochabamba**: Chapare, between Cochabamba and Villa Tunari, alt. 1200 m, 17 Jan. 1988, *C. Luer, J. Luer & R. Vásquez 12857* (MO).

This small species is locally abundant on the eastern slopes of the Andes from central Colombia to central Bolivia. Lehmann's watercolor painting of this species, *t. 117*, herb. *6520*, the type of *M. filamentosa* and labeled "M. macronema," is deposited at Kew. The clump of slender leaves is not distinctive. The little, whitish flower, occasionally faintly suffused with rose, is borne by a short peduncle. The free portions of the lateral sepals are longer than that of the dorsal sepal, all three bearing filiform tails. The tooth of the petal is sometimes poorly developed.

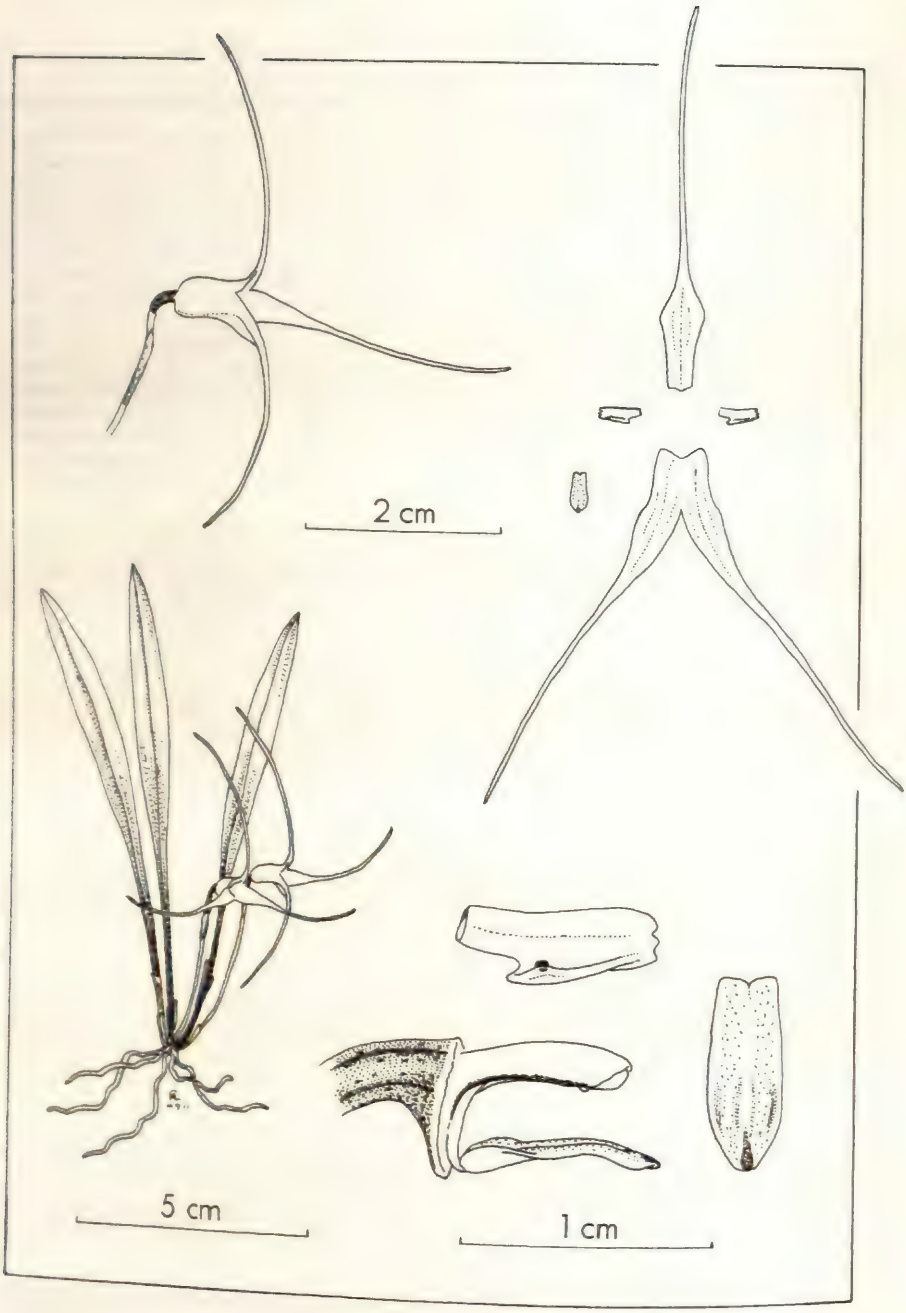


Plate 330. Masdevallia pumila

Masdevallia quasimodo Luer & Teague, Lindleyana 8: 50, 1993.

Ety.: Named for Victor Hugo's Quasimodo, the humpback of Notre Dame.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-1.5 cm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, coriaceous, indistinctly petiolate, 6-11 cm long including a petiole 1-2 cm long, the blade elliptical-obovate, subacute to obtuse, 1-1.6 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single flower, borne by a slender, erect peduncle 1-1.5 cm long, with a thin bract near the base, from near the base of a ramicaul; floral bract tubular, 6 mm long; pedicel 6 mm long; ovary 4 mm long; **sepals** purple, short-pubescent within, the dorsal sepal obovate, 11 mm long, 5 mm wide, connate to the lateral sepals for 8 mm to form a broad, campanulate tube, the free portion transversely obtuse, contracted into a subclavate, yellowish tail 7 mm long, the lateral sepals oblong, oblique, obtuse, connate 7 mm into a bifid lamina 10 mm long, 9 mm broad, the apices oblique with the thick tails 6 mm long and closely parallel; **petals** white, oblong, with the apex truncate and obscurely 3-lobed, 5 mm long, 1.5 mm wide, the labellar margin with a longitudinal callus ending in an incurved process at the base; **lip** heavily marked with purple, elliptical-oblong, arcuate, 4 mm long, 2 mm wide, the margins minutely denticulate, the apex obtuse, abruptly short-acuminate, deflexed, the disc essentially featureless, the base subtruncate, flattened on the end, hinged beneath; **column** white, semiterete, 4 mm long, the foot 3 mm long with a free extension.

BOLIVIA: **La Paz**: Prov. of Nor Yungas, epiphytic in trees along a quebrada west of Coroico, alt. ca. 1800 m, collected 27 Aug. 1991, cultivated by W. Teague in San Francisco, California, *C. Luer 16323* (Holotype: MO); northeast of Caranavi, alt. 1300 m, July 1996, *P. Cloes s.n.* (MO).

Apparently endemic in the forests of the northern slopes of the Andes of northern Bolivia, this species is indistinguishable vegetatively from the majority of the medium-sized species of the subsection. It is easily recognized by the short peduncle bearing a small purple flower with short, thick tails.

It is reminiscent of two other Bolivian species with a small, purple flower borne by a short peduncle. From *M. brachyantha*, *M. quasimodo* is distinguished by a single, non-successive flower with distinct sepaline tails and an incurved process at the base of the petals. From *M. heideri*, *M. quasimodo* is distinguished by the smaller flower, subclavate tail of the dorsal sepal, closely parallel tails of the lateral sepals, and the minutely denticulate lip.

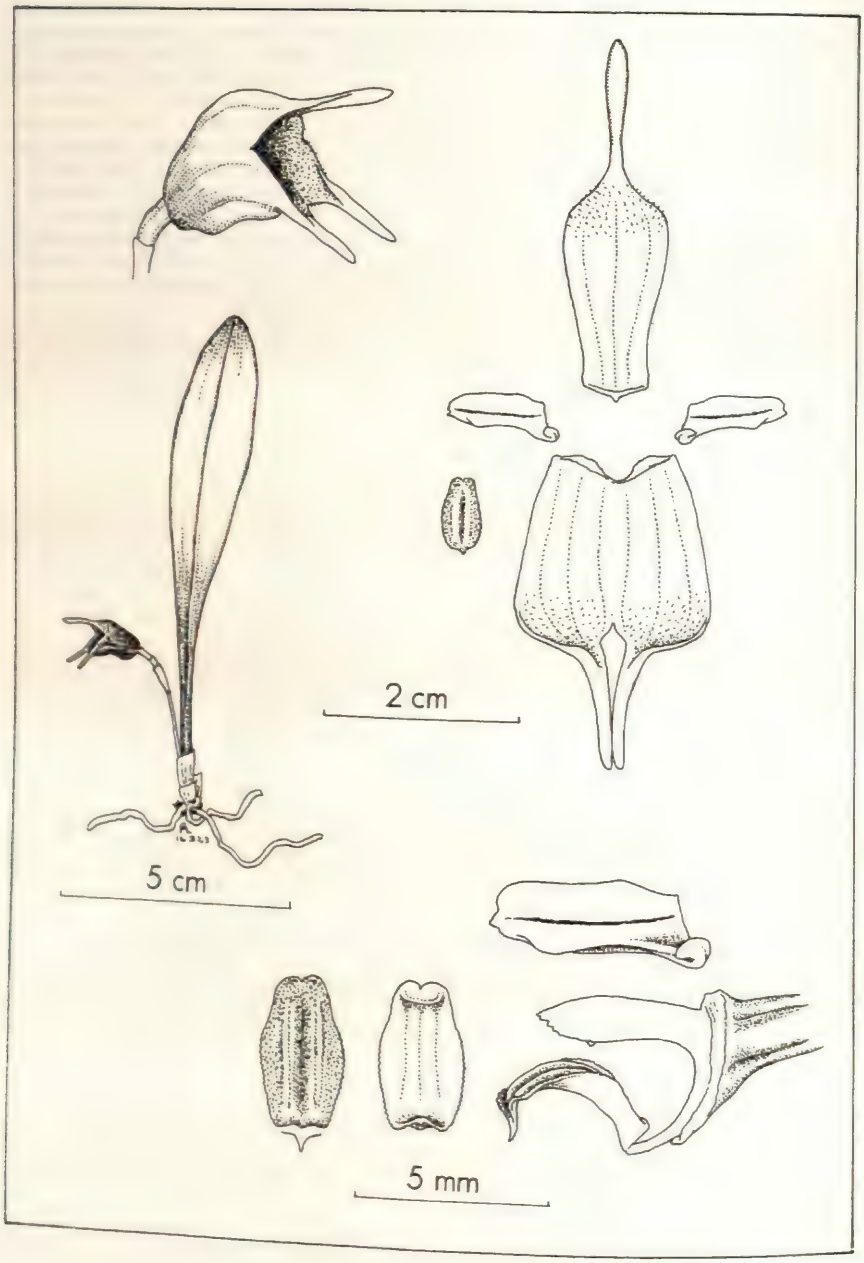


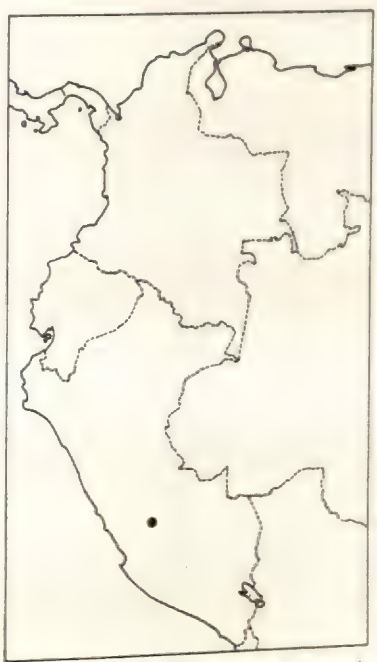
Plate 331. Masdevallia quasimodo

Masdevallia rimarima-alba Luer, Phytologia 42: 466, 1979.

Ety: From the local Indian name, "rima rima," applied to *M. uniflora* Ruiz & Pav., plus the Latin *albus*, "white," referring to the "white uniflora."

Plant medium in size to large, epiphytic to terrestrial, caespitose; roots coarse. Ramicauls slender, erect, 2-7 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 7-13 cm long including the petiole 4-5 cm long, the blade narrowly elliptical-obovate, subacute, 1-2 cm wide, gradually narrowed below into the petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle, 4-24 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 11-14 mm long; pedicel 20-27 mm long; ovary 6-10 mm long; **sepals** white, often with thin, purple stripes along the veins, glabrous, the dorsal sepal obovate, 16-17 mm long, 11-14 mm wide, connate to the lateral sepals for 10-11 mm to a broad, gaping, conical tube, the apex round, contracted into a more or less erect, thickened, green tail ca. 1 cm long, the lateral sepals ovate, oblique, connate 10 mm into a lamina 20-25 mm wide, the apices obtuse, contracted into thick, deflexed, green tails 6-8 mm long; **petals** white, oblong, 8 mm long, 3 mm wide, the apex rounded to lightly retuse, the labellar margin with a longitudinal callus ending in a short, narrowly obtuse, retrorse process above the base; **lip** rose, suffused with bright rose, elliptical-oblong, 7 mm long, 4 mm wide, with the margins more or reflexed above the middle, the apex rounded with a brown, marginal callus, the disc shallowly sulcate between low, longitudinal calli, the base truncate, hinged beneath; **column** greenish white with rose margins, semiterete, 6.5 mm long, the foot 4.5 mm long, with an incurved extension.

PERU: Without locality, imported by J & L Orchids, Easton, CT, from R. Stümpfle of Lima, Peru, cultivated 17 Nov. 1977, *C. Luer 2210* (Holotype: SEL). **Junín**: Tarma, collected by J. Meza, 1978, cultivated by W. Königer in Munich, Germany, 10 Sept. 1981, *C. Luer 6482* (SEL); epiphytic and terrestrial in scrubby cloud forest above Huasa Huasi, alt. 2500 m, 25 Aug. 1983, *W. Königer, H. Königer & M. Arias K-97a* (K, M, SEL, USM, Herb. H. Königer). Without collection data, cultivated at Colomborquídeas, 18 Mar. 1989, *C. Luer 14256*.



This species had been in cultivation as the "white uniflora," the common name distinguishing it from the "pink uniflora," the *M. uniflora* of Ruiz and Pavón. Both of these closely allied species occur in the damp, scrubby vegetation high above the ancient community of Huasa Huasi in central Peru. It was from this locality in 1778 that Ruiz and Pavón made their collection of *M. uniflora*, which was destined to become the type of the genus.

Apparently endemic in this area, *M. rimarima-alba* is distinguished by the white, bell-shaped flower striped in purple with short, thick, green tails, and petals with a short basal tooth.

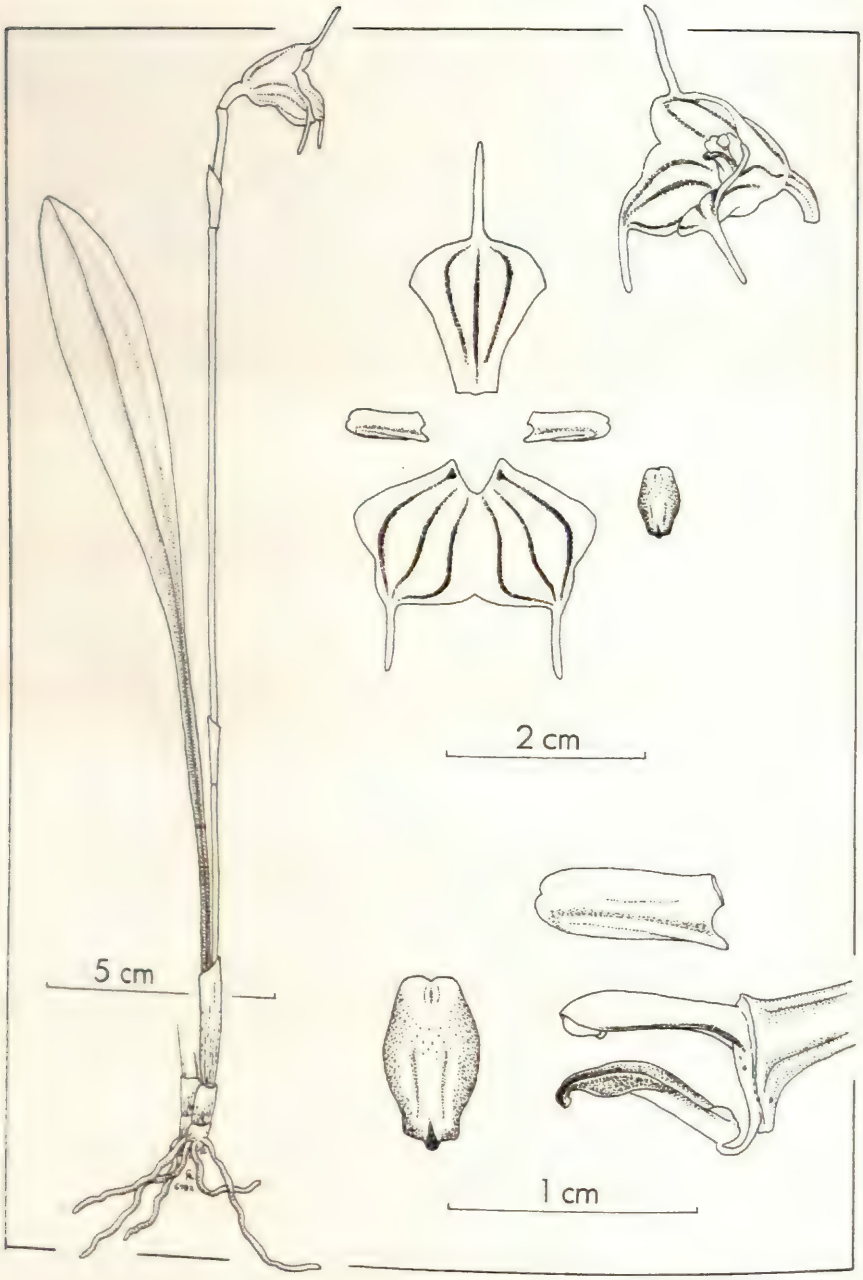


Plate 332. Masdevallia rimarima-alba

Masdevallia roseola Luer, Phytologia 47: 67, 1980.

Ety.: From the Latin *roseolus*, the diminutive of *roseus*, "rosy," referring to one of the purple colors of the flowers.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 2-3.5 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 5-8 cm long, 1.1-1.2 cm wide, gradually narrowed below into the indistinctly petiolate base. **Inflorescence** a solitary flower borne by an erect to suberect, slender peduncle 3-4 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 8-9 mm long; pedicel 8-9 mm long; ovary olive-green, pitted, 4 mm long; **sepals** dull white, lightly suffused with rose, glabrous, the dorsal sepal ovate, 11-13 mm long, 7 mm wide, connate to the lateral sepals for 8 mm to form cylindrical tube, the free portion triangular, subacute, contracted into a slender tail 22-25 mm long, the total length 36 mm, the lateral sepals narrowly ovate, oblique, 20 mm long, 6 mm wide, connate 6 mm, the acute apices gradually tapered into slender, up-curved tails 18-20 mm long, the total length ca. 38 mm; **petals** white, oblong, 5 mm long, 1.75 mm wide, the apex rounded, the labellar margin longitudinally callous, terminating in an obtuse angle above the unguiculate base; **lip** white, suffused with rose, obovate, 5 mm long, 2.25 mm wide, the apex rounded, the base shallowly cordate, hinged beneath; **column** white with purple margins, semiterete, 4.5 mm long, the foot short with an incurved extension.

ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest between Loja and Zamora, alt. ca. 1500 m, collected by R. Hawley, cultivated in Mill Valley, CA., 15 Dec. 1978, *C. Luer 3643* (Holotype: SEL).

This species was collected by Ron Hawley on the eastern declivity of the Andes between Loja and Zamora, where it has not been re-collected. The species became confused with the very similar *M. lilacina*, which was subsequently described from Peru. Similar plants from the Cordillera del Condor in southeasternmost Ecuador were mistakenly identified as *M. roseola*. Although the apices of the petals of these later collections lack the minutely denticulate edges of the apices of the petals of *M. lilacina*, the narrower leaves and the distinct marginal callus of the petals indicate that these collections are *M. lilacina* instead of *M. roseola*.

Masdevallia roseola is also related to *M. pumila*, but it is distinguished from the latter by the rose-colored sepals (the grayish white sepals of *M. pumila* are occasionally faintly pinkish), and the broader, ascending, lateral sepals with ascending tails. Although *M. roseola* has not been seen again, variations intermediate between it and *M. pumila* exist.

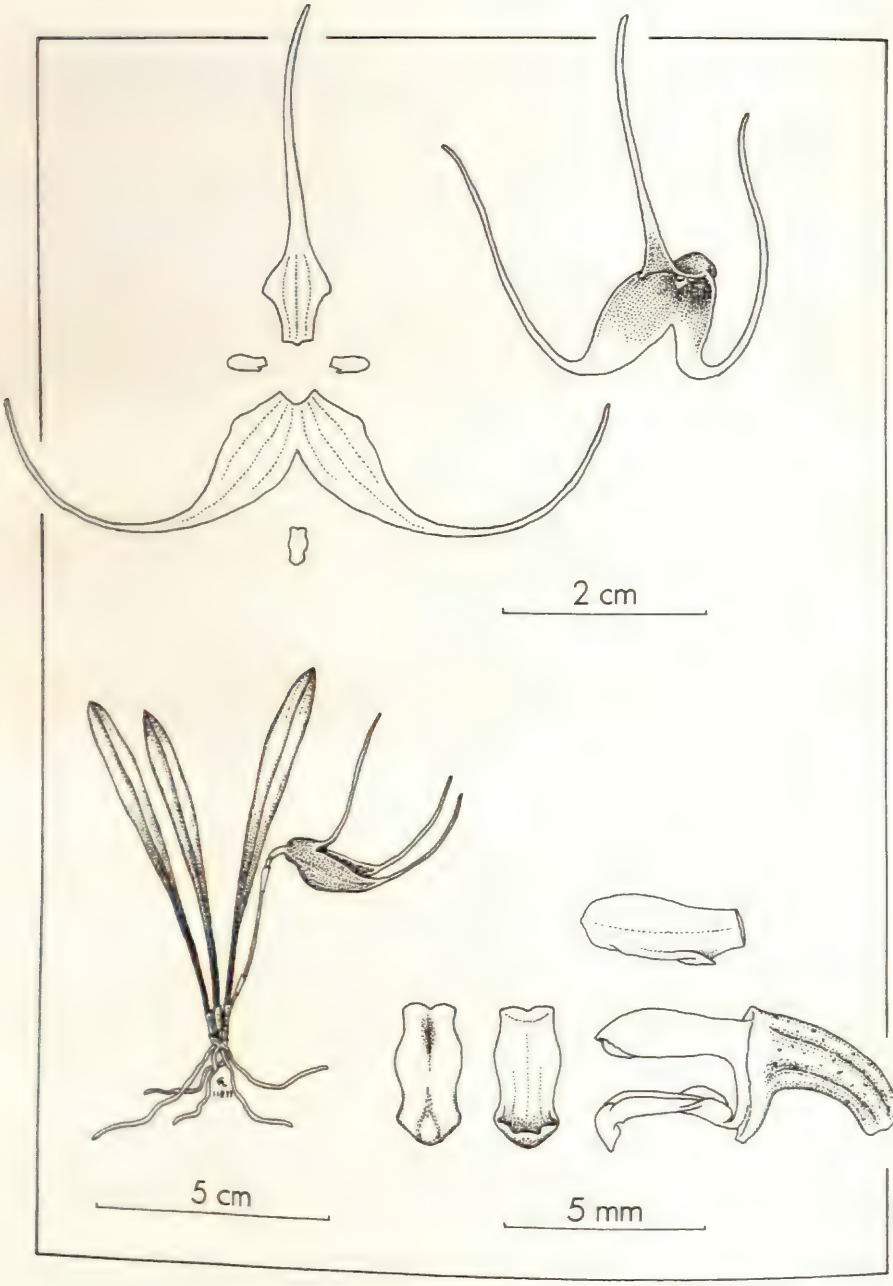


Plate 333. Masdevallia roseola

Masdevallia scandens Rolfe, Bull. New York Bot. Gard. 4: 453, 1907.

Ety.: From the Latin *scandens*, "scandens," in reference to the habit.

Syn.: *Masdevallia buchtienii* Schltr., Repert. Spec. Nov. Regni Veg. 10: 450, 1912.
Ety.: Named in honor of Otto Buchtien who collected this species.

Plant medium in size to large, epiphytic, repent, with the rhizome 1-3 cm long between ramicauls; roots slender. Ramicauls erect, slender, 2-5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 8-14 cm long including the petiole 2-5 cm long, the blade narrowly obovate, subacute, 1.5-2.2 cm wide, gradually narrowed below into the petiole. **Inflorescence** a solitary flower, borne by a slender, erect to suberect peduncle, 10-14 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 12-15 mm long; pedicel 12-20 mm long; ovary 4-5 mm long; **sepals** white to light yellow, suffused with purple along the veins and toward the base, glabrous externally, shortly pubescent within, the blade of the dorsal sepal obovate, 11-15 mm long, 8-10 mm wide, connate to the lateral sepals for 10 mm into a conical, sepaline tube, the free portion broadly rounded, abruptly contracted into an erect, slender, yellow-green tail 3-5 cm long, the blades of the lateral sepals ovate, oblique, 15-22 mm long, 7-9 mm wide, connate 7-10 mm to form a mentum with the column-foot, the apices subacute, contracted into tails similar to that of the dorsal sepal; **petals** white, oblong-ovate, 6-7 mm long, 2-3 mm wide, with the apex subacute, obscurely lobed, the labellar margin with a thick, longitudinal callus ending in a thick, obtuse, incurved and retrorse process above the base; **lip** cream, suffused and speckled with brown, elliptical, 6.5 mm long, 3 mm wide, with the apex thickened, acute, the disc shallowly sulcate between a low, parallel pair of longitudinal calli, the base subcordate, hinged beneath; **column** white, with the margin purple, semiterete, 6 mm long, the foot 2 mm long, with a long, slender, incurved extension.

BOLIVIA: Without locality, ca. 1893, *M. Bang 1797* (Holotype: NY; Isotype: AMES, BM, G, K, MO, US). Without locality, *B. Roezl s.n.* (W). **La Paz**: Larecaja, near Sorata, *E. Günther 23* (HBG); Nor Yungas, lithophytic near Unduavi, alt. 3200 m, Nov. 1910, *O. Buchtien 2615* (holotype of *M. buchtienii* destroyed at B; lectotype: AMES; isolectotypes: G, HB, K, NY, US); Murillo, Unduavi, alt. 8,000 ft., Oct. 1885, *H.H. Rusby 2736* (AMES, BM, G, K, LE, NY, US); epiphytic in cloud forest between Unduavi and Chuspipata, alt. 3100 m, 22 Jan. 1984, *C. Luer, J. Luer & R. Vásquez 9415* (SEL); same area, west of Chuspipata, alt. 3000 m, 27 Aug. 1991, *C. Luer, J. Luer, R. Vásquez et al. 15360* (MO).

This species is endemic and locally abundant in the cold, wet forests near high passes in the Yungas of Bolivia. It has been collected by most, if not all the botanists who have visited the area.

Masdevallia scandens is characterized by the elongated, climbing rhizome that produces ramicauls in apposition for a more or less caespitose appearance. The long-petiolate leaves seem weak. They are usually surpassed by the long, slender, single-flowered peduncle. The flower is pale yellowish, sometimes variously but lightly suffused with rose or purple, with slender tails three to five centimeters long. The marginal callus of the petals end in a thick, retrorse process at the base. The lip is elliptical and acute.

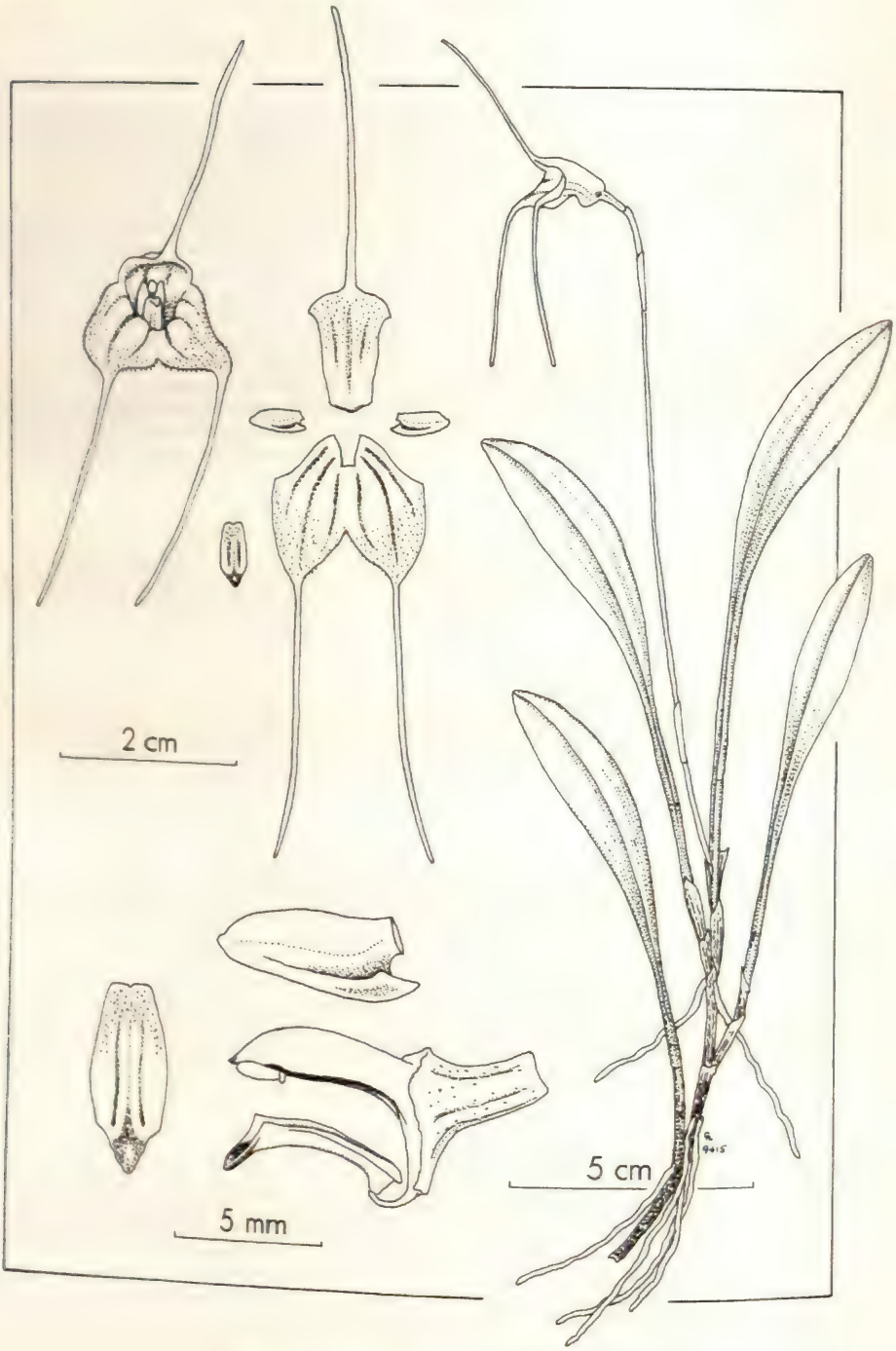


Plate 334. Masdevallia scandens

Masdevallia schoonenii Luer, Lindleyana 8: 53, 1993.

Ety.: Named for Jan A.C. Schoonen of Putte, the Netherlands, who discovered this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, black, 0.5-1 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, dark green, petiolate, 2.5-4 cm long including a blackish petiole 0.5-1.3 cm long, the blade elliptical, obtuse, 1-1.5 cm wide, cuneate below into the petiole. **Inflorescence** a single flower, borne by a slender, erect peduncle 4.5-5.5 cm long, with a thin bract near the base, from near the base of a ramicaul; floral bract tubular, 8 mm long; pedicel 14-20 mm long; ovary thick, 6 mm long; **sepals** slightly fleshy, yellowish, with a spot of brown at the base of the lateral sepals, subcarinate externally along the veins, minutely pubescent within, the dorsal sepal obovate, concave below the apex, 11 mm long, 8 mm wide, connate to the lateral sepals for 4 mm to form a campanulate tube, with the apex rounded, thickened, abruptly contracted into an acutely reflexed, 1 mm thick, yellow tail 12-15 mm long, the lateral sepals ovate, obtuse, oblique, 10 mm long, 7 mm wide, connate 5 mm into a broad, shallow mentum, the apices contracted into thick, recurved tails similar to that of the dorsal sepal; **petals** yellow, oblong, with the apex rounded and obscurely lobulate, 5 mm long, 2.5 mm wide, the labellar margin with a thick longitudinal callus ending in a broad, truncate process above the base; **lip** yellow, erect, rhombic, 4 mm long, 3.5 mm wide, the apex obtuse with a thick deflexed callus, the disc superficially channeled, the base subtruncate, hinged beneath; **column** yellow, semiterete, 4 mm long, the foot with a thin 1 mm long, incurved extension.

PERU: **Amazonas**: epiphytic near Pomacochas, alt. 2100 m, July 1991, cultivated at Putte, the Netherlands, Nov. 1991, *J. Schoonen 9203* (Holotype: MO), C. Luer illustr. 16232.

This species is about midway between subsections *Caudatae* and *Masdevalliae*, but because of the deeper than usual connation between the dorsal sepal and concave lateral sepals it is treated here in subsection *Masdevallia*. The small, petiolate leaves are broad with black petioles. The somewhat fleshy, campanulate flower is yellow with thick, recurved tails about as long as the blades of the sepals. The water-content is probably high because the tails become thin when dried. The petals are rounded at the apex and the labellar margin is thickly callous with a blunt, basal process. The lip, erect in the natural position, is rhombic with a thick, recurved callus at the narrowed apex.

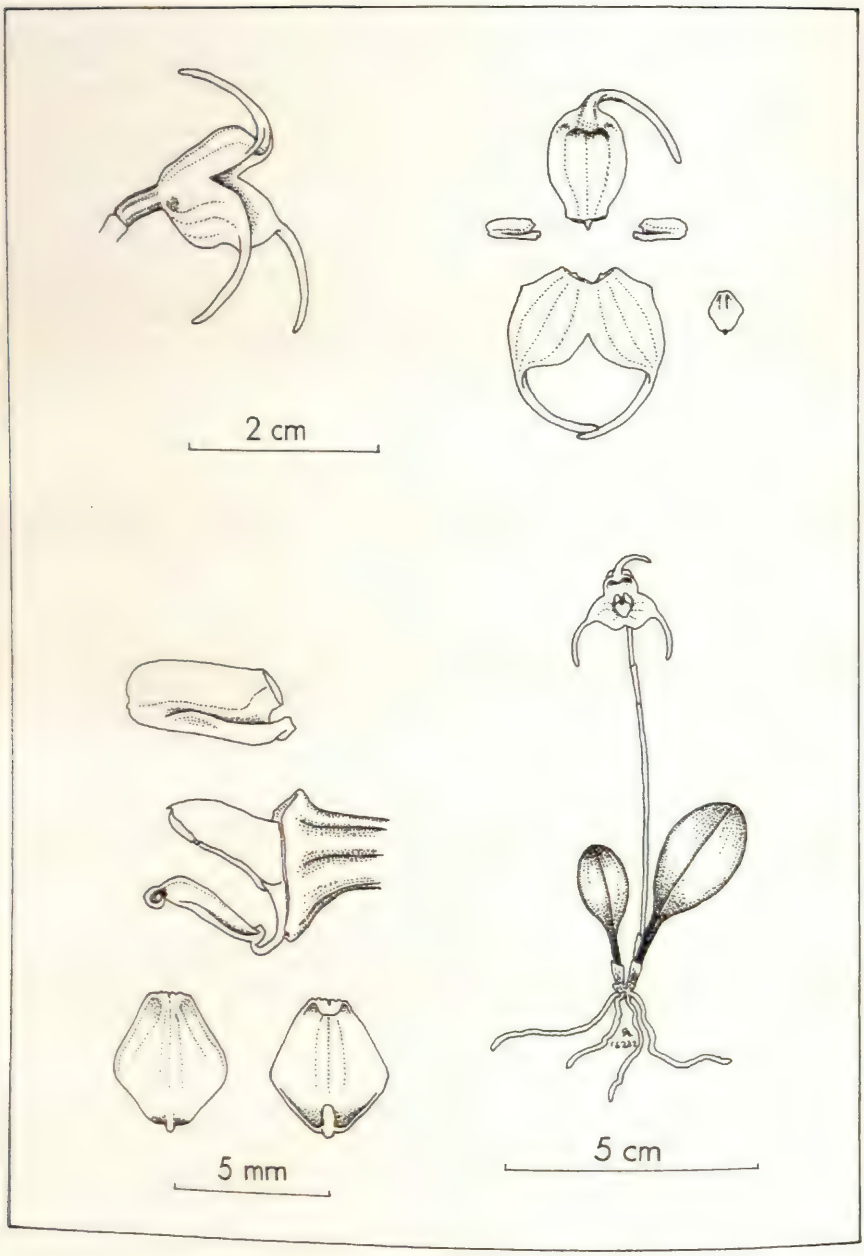


Plate 335. Masdevallia schoonenii

Masdevallia selenites Königer, Die Orchidee 31: 119, 1980; emend. 36: 87, 1985.

Ety.: From the Greek *selenites*, "in the form of the moon," referring to the subspherical, white flower.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3-4.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 10-14 cm long including the petiole 2-4 cm long, the blade elliptical, obtuse, 2.5-3.7 cm wide, cuneate below into the slender petiole. **Inflorescence** a solitary, snow white flower borne by a slender, erect peduncle 5-6 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 10-13 mm long; pedicel 16-21 mm long; ovary green, 7-8 mm long; **sepals** white, faintly yellowish toward the base with a small red spot, glabrous externally, shortly pubescent within, the dorsal sepal obovate, concave, 12 mm long, 11 mm wide expanded, connate to the lateral sepals for 11 mm to form a suborbicular, sepaline cup, the transverse apex abruptly contracted into an erect, slender, light yellow tail 2-2.5 cm long, thickened above the middle, the lateral sepals transversely obovate, oblique, concave, 10 mm long, 10 mm wide, connate 9 mm, forming a broad, shallow mentum to complete the orbicular flower, the apices transverse, abruptly contracted into slender tails 2-2.5 cm long; **petals** white, more or less oblong, 6 mm long, 1.5-2.75 mm wide, the apex tridentate, the labellar margin with a longitudinal carina, produced into a thick, retrorse process above the shortly unguiculate base; **lip** yellow, elliptical-ovate, 6.25 mm long, 2.5 mm wide, the margins irregular and revolute above the middle, the apex obtuse, apiculate, the base subcordate, hinged beneath; **column** white, semiterete, 4 mm long, the foot 3 mm long with a short, incurved extension.

PERU: **Junín**: near Huasa Huasi, alt. 3000 m, 1978, *J. Meza T. s.n.* (Holotype: SEL; clonotypes: K, M); same collection, cultivated by W. Königer in Munich, Germany, Nov. 1978, *C. Luer 4854* (SEL); same collection, cultivated by Colomborquídeas, Colombia, 20 Apr. 1988, *C. Luer 13289* (MO).

This species, along with *M. cyclotega*, *M. parvula* and *M. scitula*, was exported to Germany from Peru in 1978 by Jorge Meza Torres of Chachapoyas. The locality given was a narrow valley within the Chanchamayo valley above Huasa Huasi.

Vegetatively similar to many other species of the section, *M. selenites* is readily identified by the snow white, globose, sepaline cup with a tiny red dot at the base. The opening to the pubescent interior of the flower is small, so that the petals, lip and column cannot be seen. The tails of the sepals emerge abruptly from the blunt apices of the sepals. The erect, orange tail of the dorsal sepal is clavate-thickened.

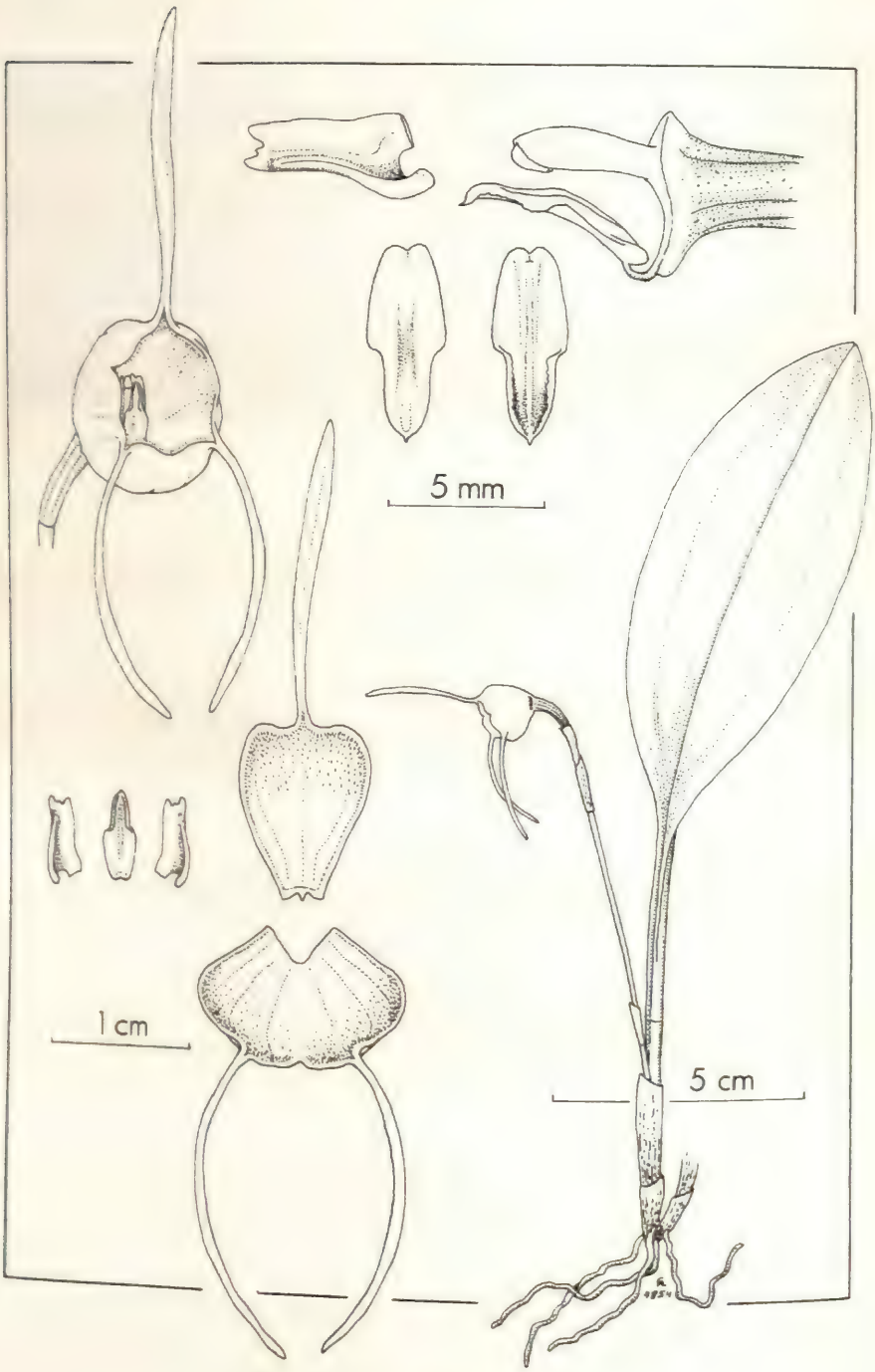


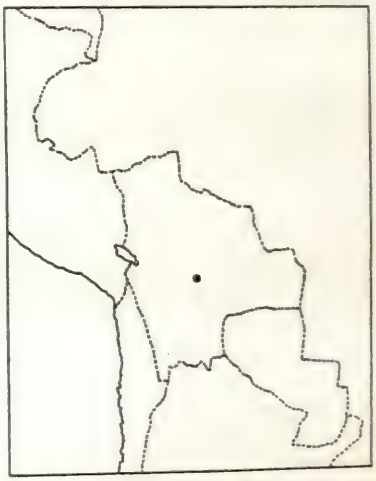
Plate 336. Masdevallia selenites

Masdevallia soennemarkii Luer & Dalström, Lindleyana 9: 252, 1994.

Ety.: Named in honor of Jan Sönnemark of Halmstad, Sweden, co-discoverer of this species.

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls slender, erect, blackish, 1.5-2.5 cm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 7-12 cm long including a petiole 2.5-3.5 cm long, the blade elliptical, acute, 2-2.7 cm wide, cuneate below into the slender, blackish petiole. **Inflorescence** a single flower, borne by a slender, erect peduncle 1.5-3 cm long, with a bract near the base, from near the base of a ramicaul; floral bract tubular, 6-7 mm long; pedicel 9-14 mm long; ovary 5 mm long, subtricarinate; **sepals** fleshy, subcarinate along the midveins, yellow-orange, pubescent within, the dorsal sepal purple along the midvein, obovate, concave, the blade 13 mm long, 8 mm wide expanded, connate to the lateral sepals for 10 mm to form a cylindrical tube, the free portion transversely obtuse, contracted into an orange, forwardly directed tail 10 mm long, the lateral sepals heavily suffused with purple, obovate, obtuse, oblique, 15 mm long, 6 mm broad, connate 7.5 mm into a concave lamina, with a shallow mentum below the column-foot, the apices contracted into descending tails 6 mm long; **petals** white, oblong, minutely tridenticulate at the obtuse apex, 5 mm long, 1.5 mm wide, the labellar margin with a longitudinal callus ending in a slender, descending process 1 mm long at the base; **lip** dark purple, oblong, rigidly arcuate, 6.5 mm long expanded, 2.5 mm wide, the apex acute, decurved, the disc shallowly sulcate, the base subtruncate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 4 mm long with an incurved extension.

BOLIVIA: **Santa Cruz**: epiphytic in moist forest near Karahuasi, alt. 2300 m, collected Jan. 1994 by S. Dalström and J. Sönnemark, cultivated by Sönnemark in Halmstad, Sweden, 13 Aug. 1994, *C. Luer 17238* (Holotype: MO).



This species, locally abundant in wet forests at moderately high altitudes in the southernmost part of the range of the genus in central Bolivia, is distinguished by elliptical, long-petiolate leaves. The flowers are borne singly on short, more or less horizontal peduncles no longer than the petioles of the leaves. The sepals are rigid and orange with suffusion of purple along the midvein of the dorsal sepal, while the laterals are intensely suffused with purple, shiny, and shortly pubescent and spiculate within. The petals are minutely tridenticulate. The deep purple lip is arcuate, sulcate, and acute at the apex.

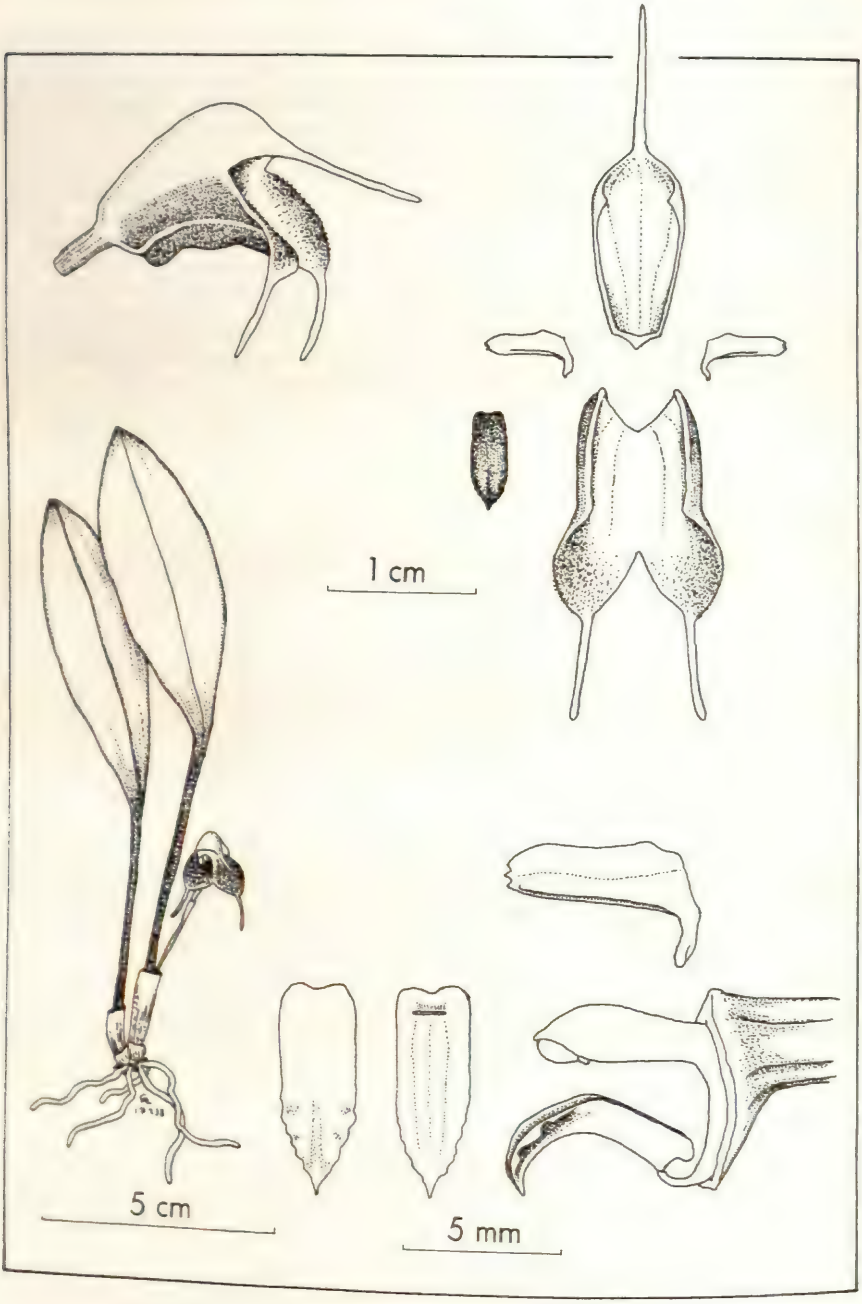


Plate 337. Masdevallia soennemarkii

Masdevallia solomonii Luer & Vásquez, Lindleyana 3: 204, 1988.

Ety.: Named in honor of James C. Solomon, curator of the Missouri Botanical Garden, co-discoverer of this species.

Plant small, epiphytic to terrestrial, caespitose; roots relatively coarse. Ramicauls erect, slender, 1.5-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 3-5 cm long including the petiole 1-2 cm long, the blade narrowly elliptical, acute, 0.7-1 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 5-6 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular 6-9 mm long; pedicel 7-18 mm long; ovary, 3-5 mm long; **sepals** yellow-orange with 3 brown stripes along the veins, carinate, densely short pubescent within, the dorsal sepal obovate, concave, 11 mm long, 10 mm wide expanded, connate to the lateral sepals for 7 mm to form a broad, sepaline cup, the rounded apex contracted into an erect or reflexed, slender, orange tail 2.5 cm long, the lateral sepals oblong, oblique, 10 mm long, 6 mm wide, connate 7-8 mm into a prominent, rounded mentum 2-3 mm deep, the free portions oblique, subacute, contracted into slender, orange tails 2 cm long; **petals** light yellow-brown, more or less oblong, 6 mm long, 2 mm wide, the apex acute, the labellar margin with a longitudinal callus ending in a long, slender, incurved, truncate process from the base; **lip** light yellow-brown, oblong, arcuate, broadly obtuse, 7 mm long, 4 mm wide expanded, the disc with a longitudinal pair of low calli, with a central callus ending at the apex, the base rounded, deeply sulcate, hinged beneath; **column** light yellow, semiterete, 5 mm long, the foot 7 mm long including a long, incurved extension within the sepaline mentum.

BOLIVIA: **La Paz**: Prov. of Murillo: valley of the Río Zongo, alt. 2650 m, terrestrial on rocky road cut, 30 Jan. 1988, *C. Luer, J. Luer, J. Solomon, T. & D. Mulder & A. Vogel 12966* (Holotype MO; Isotypes: K, LPB).

This species is apparently endemic in the Zongo Valley north of La Paz where it has been found on a few occasions. The brown-striped, yellow-orange, suborbicular flowers are very distinct with a large, deep mentum of the sepaline tube. The long, incurved extension from the column-foot fits into this mentum. The oblong, arcuate lip is similar to but much smaller than that of *M. yungasensis*, which is also found in the same valley.

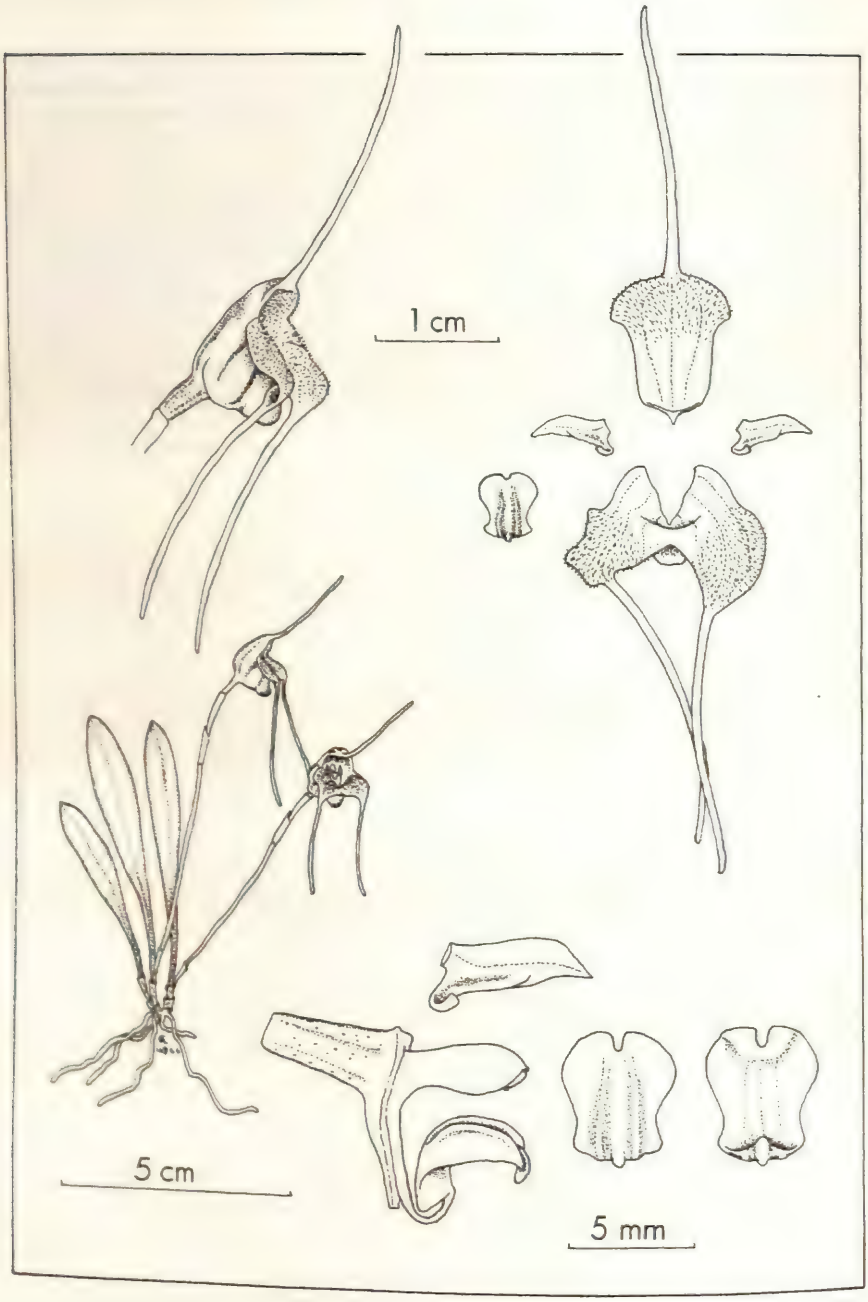


Plate 338. Masdevallia solomonii

Masdevallia Xstrumella Luer, Schlechteriana 1(2): 9, 1988.

Ety.: From the Latin *strumella*, "a little goiter," referring to the small mentum of the sepaline tube as compared to that of *M. strumifera*.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 2.5-3 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 9-12 cm long including the petiole 3-5 cm long, the blade narrowly elliptical-obovate, subacute, 1-1.2 cm wide, gradually narrowed below into the slender, blackish petiole. **Inflorescence** a solitary, white flower borne by a slender, erect, peduncle 12-15 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular 8-9 mm long; pedicel 13-16 mm long; ovary black, 5 mm long; **sepals** white, microscopically pubescent within, the dorsal sepal obovate, 13 mm long, 6.5 mm wide, connate to the lateral sepals for 8.5 mm to form a cylindrical, sepaline cup, the subacute apex contracted into an erect, slender, light yellow tail 28-35 mm long, the lateral sepals oblong, oblique, 18 mm long, 6 mm wide, connate 6.5 mm, forming a mentum with the column-foot, the apices acute, contracted into slender tails similar to that of the dorsal sepal; **petals** white, more or less oblong, 4.25 mm long, 2 mm wide, the truncate apex obscurely lobulate, the lower margin with a longitudinal carina, produced into an incurved tooth above the unguiculate base; **lip** yellow, oblong, 6 mm long, 2.5 mm wide, the margins lightly erose above the middle, the apex round with a decurved, marginal callus, the base truncate, hinged beneath; **column** white, semiterete, 4 mm long, the foot 3 mm long with an incurved extension.

COLOMBIA: **Santander**: epiphytic in cloud forest east of Bucaramanga, alt. 2950 m, 7 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10180* (Holotype: MO).

Several plants answering the above description were found in an area of cool, moist, cloud forest inhabited by the white-flowered *M. tubulosa* characterized by a long, narrow, chinless, cylindrical sepaline tube. The free portions of the lateral sepals and the sepaline tubes of the strange plants were broader, and a definite but small mentum was formed at the base, but not as prominently as that of the smaller white-flowered *M. strumifera* characterized by a shorter, broader sepaline tube with a deep mentum. *Masdevallia strumifera* was abundant in scrubby cloud forest at an altitude about 200 hundred meters higher. The petals of the strange flower were broad, resembling more closely those of *M. strumifera*. The oblong lip of either species is not distinctive.

Most likely the above described taxon represents a natural hybrid between *M. tubulosa* and *M. strumifera*, but no attempts at hybridization between the putative parents has been carried out to prove or disprove the supposition.

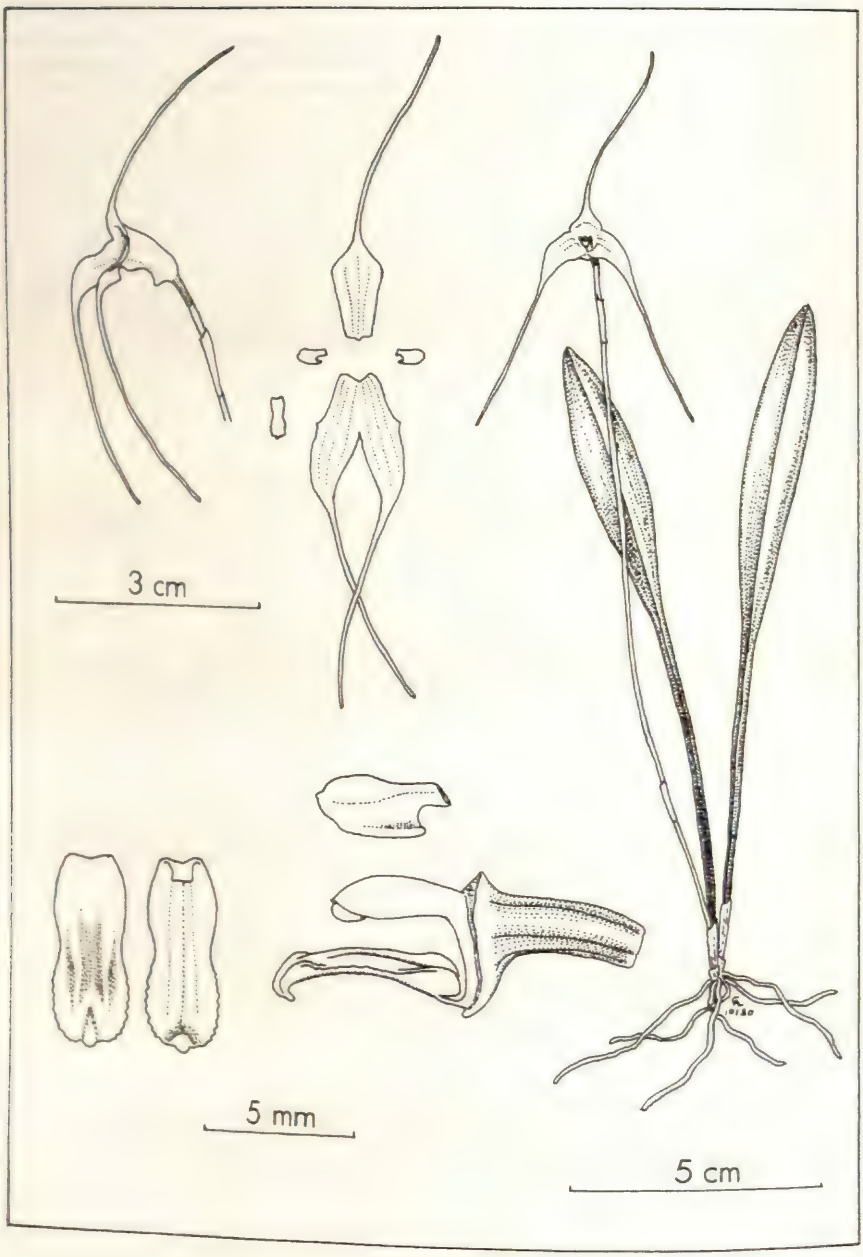


Plate 339. Masdevallia Xstrumella

Masdevallia strumifera Rchb.f., Flora 69: 560, 1886.

Ety.: From the Latin *strumifer*, "bearing a goiter," referring to the prominent mentum.

Syn.: *Masdevallia chrysochaete* Lehm., Bot. Jahrb. Syst. 26: 452, 1899, *nom. nud.*; Lehm. & Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 159, 1925.
Ety.: From the Greek *chrysochaete*, "orange hair," probably referring to the tails.

Syn.: *Masdevallia maxillariiformis* Lehm. & Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 433, 1921.
Ety.: From *Maxillariiformis*, suggesting the shape of the flower to be similar to a *Maxillaria*.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, coriaceous, 1-2.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** dark green often mottled with black, erect, coriaceous, petiolate, 2-12 cm long including the petiole 1-5.5 cm long, the blade narrowly elliptical, acute, 1-1.7 cm wide, gradually narrowed below into the slender, blackish petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 2.5-11 cm long, with a bract above the base, from low on the ramicaul; floral bract 6-12 mm long; pedicel 4-12 mm long; ovary 3-5 mm long; **sepals** white, yellowish toward the base and mentum, the dorsal sepal obovate, 10-12 mm long, 4.5-5.5 mm wide, connate to the lateral sepals for 7-10 mm to form an arcuate, cylindrical tube, the free portion triangular with microscopically erose margins, the apex acute to obtuse, contracted into a slender, yellow tail 16-18 mm long, the lateral sepals sometimes microscopically pubescent within, ovate, oblong, 11-16 mm long, 4-6 mm wide, connate 6-10 mm, forming at the base a deep, narrow mentum with the column-foot, the acute apices contracted into slender tails 15-18 mm long; **petals** white, oblong, 5 mm long, 2.25-3 mm wide, the obtuse apex variously lightly bilobed, with a short, obtuse apiculum to shallowly 3-lobed, the labellar margin callous, ending in an obtuse tooth above the base; **lip** orange, oblong, 7-8 mm long, 2.25-3 mm wide, slightly dilated below the rounded apex with a low, midline callus, often minutely erose, the base cordate-retuse, hinged below; **column** white, semiterete, 4-5 mm long, the foot 4-5 mm long with an incurved extension.

COLOMBIA: Without locality, *F.C. Lehmann 2720* (Holotype: W). **Norte de Santander**, old department of Ocaña: alt. 2500 m, *L. Schlim 503* (BR, K); Cerro Oroque, Jurisdicciones, alt. 3440-3750 m, 22 May 1969, *H. García-Barriga & R. Jaramillo 19834* (AMES, COL). **Santander**: between Bucaramanga and Berlin, alt. 3200 m, 27-28 Apr. 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7575* (AMES, MO, SEL); east of Bucaramanga, alt. 2950 m, 7 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10163* (MO). **Cundinamarca**: "Prov. Bogotá," alt. 2600 m, 1854-57, *J. Triana s.n.* (P); Boquerón de San Francisco near Bogotá, alt. 2700 m, 21 Jan 1883, *F.C. Lehmann 2452* (holotype of *M. maxillariiformis*: W; isotypes: BM, BR, G, US); Páramo de Guerrero above Zipaquirá, alt. 2600-3000 m, *F.C. Lehmann 7034* (syntypes of *M. chrysochaeta* AMES, K, LE, US); slopes of the Andes east of Bogotá, Boquerón de Chipaque, alt. 2600-3000 m, 8 July 1897, *F.C. Lehmann 8868* (holotype of *M. chrysochaete*: K); Monserrate, alt. 2800 m, 3 June 1939, *J. Renz 3604* (BAS); Páramo Cruz Verde, between Bogotá and Choachi, alt. 3000 m, 6 Mar. 1939, *J. Renz 3600* (BAS); between Bogotá and Choachi, alt. 3200 m, 5 Aug. 1955, *J. Renz 8450* (BAS); between Subachoqué and Tablazo, alt. 3000 m, 30 July 1967, *L. Uribe U. 5898* (JAUM, MO, US); Quebrada del Chicó, alt. 2700-3200 m, 2 Jan. 1944, *M. Schneider 148* (AMES); above Gutierrez south of Bogotá, alt. 2700 m, *C. Luer, J. Luer & R. Escobar 10379* (MO). **Antioquia**: Santa Rosa Osas, alt. 2600 m, 7 June 1986, *F.J. Roldán, O. Marulanda & J. Betancur 463* (MO). **Tolima**: near Murillo, alt. 3100-3200 m, 8 Jan. 1952, *M. Schneider 148* (S). **Valle del Cauca**: Páramo de Bavaya, Corrales, alt. 3450-3520 m, 20 Mar. 1946, *J. Cuatrecasas 20214* (AMES, US); Buena Vista, alt. 3100 m, Jan. 1906, *H. Pittier 1157* (US). **Cauca**: Páramo de Moras, alt. 3000 m, 3 Mar. 1883, *F.C. Lehmann 2673* (G); Sotará above Pitayo, alt. 2900-3200 m, 20 Feb. 1884, *F.C. Lehmann 3720* (BM, BR, K); Laguna de Cusiyaco, alt. 3200 m, 7-12 Oct. 1958, *Idrobo, Pinto & Bischler 3893* (P).

VENEZUELA: **Táchira**: between La Revanche and Las Delicias, Miralejos, alt. 2000 m, 9 May 1951, *J.*

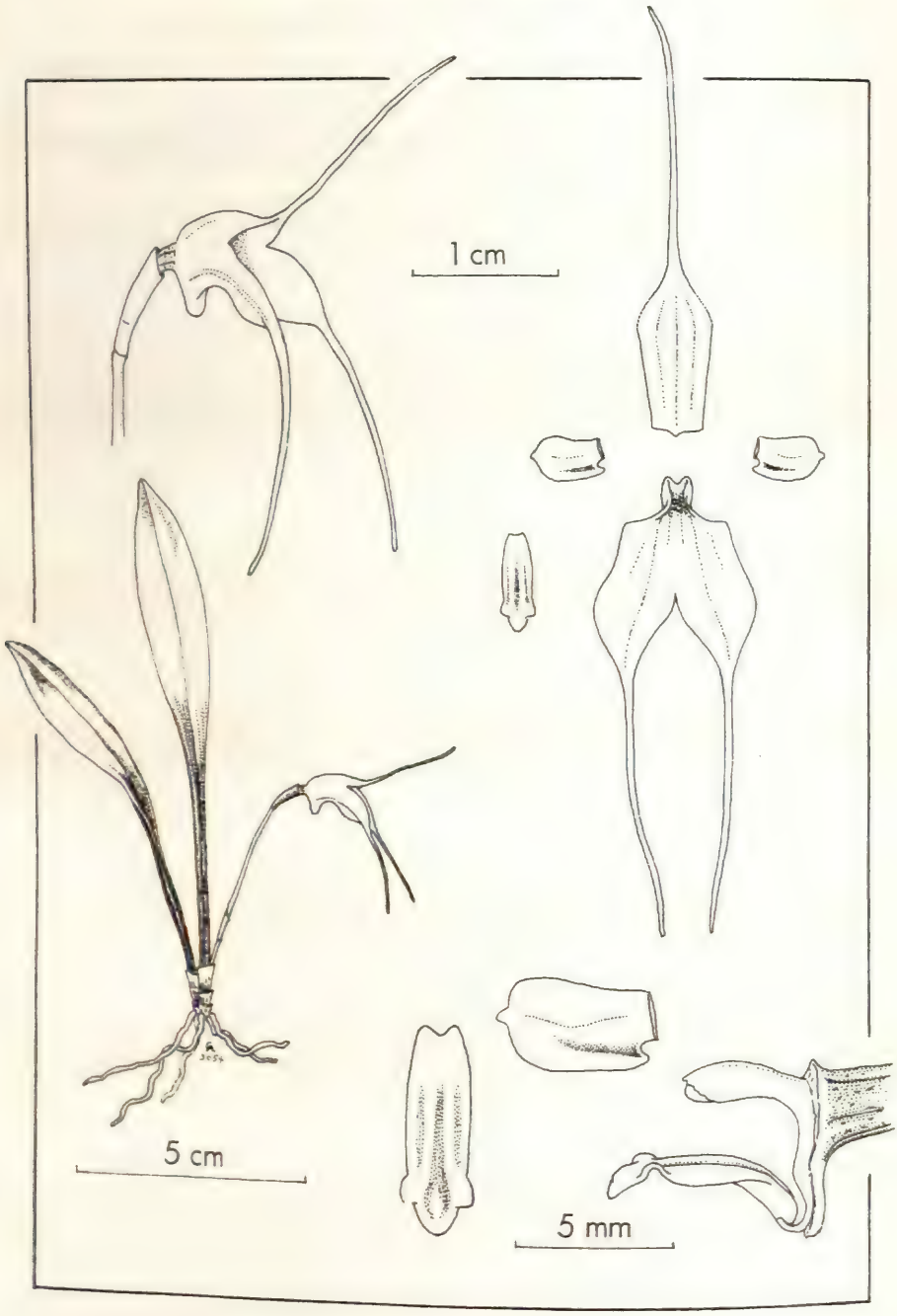
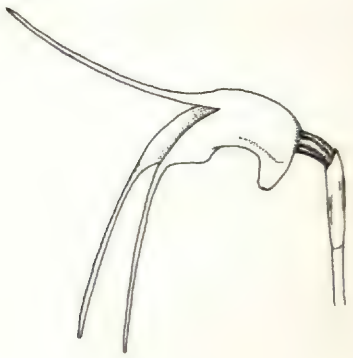


Plate 340. Masdevallia strumifera

Renz 6922 (BAS); Páramo de La Negra, alt. 2700-2900 m, 29 Aug. 1966, *J.A. Steyermark & M. Rabe 96917* (AMES, VEN); mossy forest at the pass between Bailadores and La Grita, alt. 3000 m, Sept. 1974, *G.C.K. Dunsterville 1327*.
ECUADOR: **Carchi**: epiphytic in cloud forest above Maldonado, alt. 2500 m, 25 Aug. 1978, *C. Luer, J. Luer & A. Hirtz 3410* (SEL). **Sucumbíos**: below La Bonita, alt. 2000 m, Oct. 1996, *S. Dalström, S. Ingram & K. Ferrell-Ingram 2276* (MO). **Imbabura**: eastern slopes of Volcán Cayambe, Naranjito, alt. 9,700 ft., 7 May 1944, *W.B. Drew E-167* (AMES). **Tungurahua**: Cordillera de Llanganates, El Triunfo, alt. 2800 m, Feb. 1991, *A. Hirtz 5146* (MO).

Masdevallia strumifera grows epiphytically or terrestrially, commonly at altitudes over 3000 meters above sea level in Colombia, Ecuador and Venezuela. In common with other species from high altitudes, *M. strumifera* usually resists successful cultivation. The plant is characterized by narrowly elliptical, petiolate leaves borne by slender ramicauls that are often blackened as seen in numerous species of the genus.

The small, white flower is borne above the middle of the leaf by a slender peduncle, even when the leaf is only a few centimeters high. The flower is easily identified by the long, narrow mentum (the goiter) formed by the bases of the lateral sepals and the elongated column-foot. The marginal callus of the petals ends in a short, blunt process. The lip is oblong with an obscure pair of longitudinal calli.



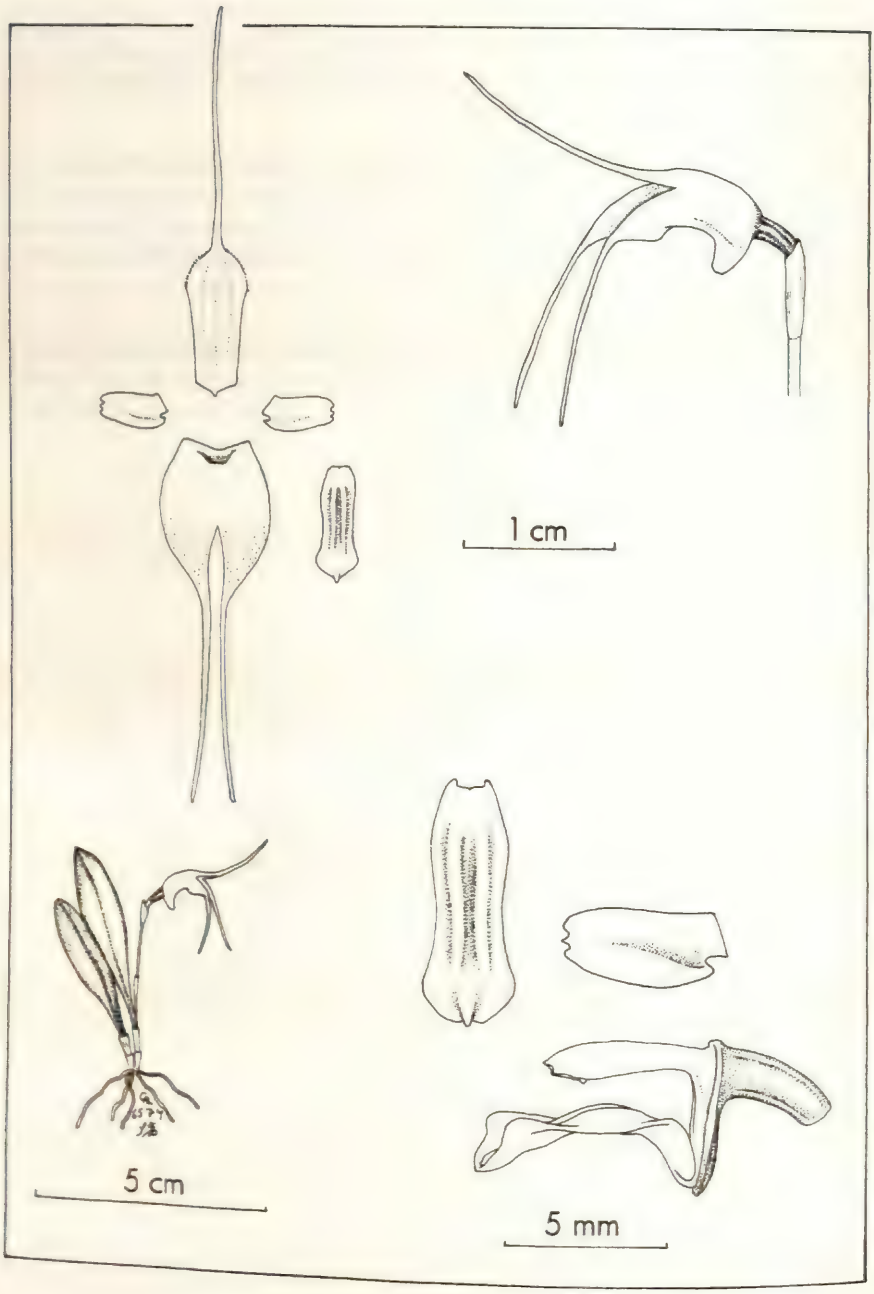


Plate 341. Masdevallia strumifera

Masdevallia suinii Luer & Hirtz, sp. nov.

Ety.: Named in honor Linder Suin of Gima, Ecuador, who collected this species.

Species haec *M. corderoanae* Lehm. & Kraenzl. affinis, sed ramicaulibus brevioribus pedunculo basali, sepalis lateralibus quinque-nervis, et petalis labelloque majoribus distinguitur.

Plant medium to large in size, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 3-4.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 8-14 cm long including the petiole 3-4 cm long, the blade elliptical, subacute, 2-3.5 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 8-9 cm long, with a bract above the base, from a node low on the ramicaul; floral bract tubular, 12 mm long; pedicel 15 mm long; ovary 7 mm long; **sepals** dirty white to tan, with the veins striped with dark purple-brown, microscopically pubescent within, the dorsal sepal obovate, the blade 27 mm long, 16 mm wide, connate to the lateral sepals for 17 mm to form a broad, sepaline tube, the free portion triangular with the subacute apex contracted into a stout tail 23 mm long, the lateral sepals ovate, oblique, 50 mm long, each 16 mm wide, connate 11 mm, forming a broad mentum with the column-foot, the free portions acute, gradually narrowed into slender tails ca. 15 mm long; **petals** white with purple midvein, marked with purple, oblong, 11 mm long, 6 mm wide, the obtuse apex obscurely bilobed, the lower margin with a thick, longitudinal carina ending in an acute retrorse tooth above the base; **lip** dark purple, oblong-subpandurate, 15 mm long, 8 mm wide, the apex truncate, recurved, with a marginal, midline callus, the base subcordate, deeply cleft, the disc shallowly channeled; **column** white with a purple margin, semiterete, 11 mm long, the foot 6 mm long with a 3 mm long, incurved extension.

ECUADOR: **Azuay**: Near Gima, collected by Linder Suin, alt. ca. 2500 m, Feb.2001, *C. Luer 19791* (Holotype: MO).

This species, apparently confined to southeastern Ecuador, was recently discovered by Linder Suin. It is closely related to *M. corderoana*, which is scattered through much of Ecuador. Vegetatively, it differs from the latter by a shorter, stout ramicaul that bears the peduncle from near the base. The ramicaul of *M. corderoana* is more slender, bearing the peduncle from near the middle or higher.

The darkly colored flowers are large with the sepals striped in purple or brown along the veins. The laterals are prominently five-veined. The petals, lip and column are basically similar to those of *M. corderoana*, but significantly larger. The lip is narrowed below the truncate apex. The floral dimensions quoted above are from a single, but average-sized flower. Both larger and smaller flowers were present on other plants.

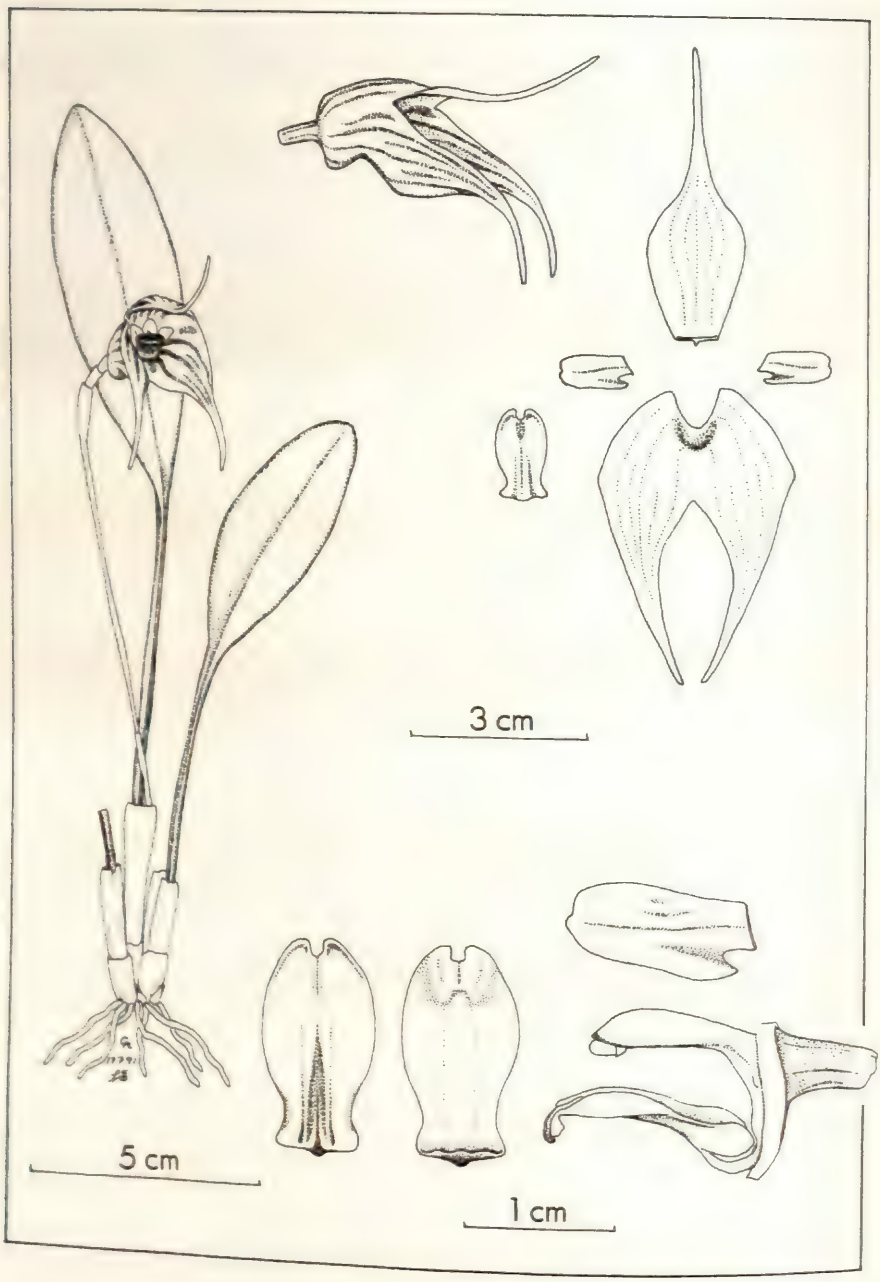


Plate 342. Masdevallia suinii

Masdevallia terborchii Luer, Rev. Soc. Bol. Bot. 3: 41, 2001.

Ety.: Named for Herman ter Borch of Eindhoven, the Netherlands, who cultivates this species.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls erect, 4-8 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 12-17 cm long including the petiole 5-8 cm long, the blade elliptical, acute to subacute, 2-2.5 cm wide, cuneate below into the petiole. **Inflorescence** a single flower borne by a slender peduncle 10-12 cm long, with a tubular sheath above the base, from a node 2-4 cm above the base of the ramicaul; floral bract thin, tubular, 10-15 mm long; pedicel 2-3.5 cm long; ovary 5 mm long; **sepals** white, lightly suffused with rose, glabrous externally, densely but finely pubescent within above the middle, the dorsal sepal obovate, 18 mm long, 10 mm wide, 3-veined, connate to the lateral sepals for 11-13 mm into a cylindrical, slightly arcuate, sepaline tube, the apex obtuse to rounded, contracted into a forwardly directed, light yellow tail 13-15 mm long, the lateral sepals connate 12-13 mm long, into an obovate, bifid lamina, 18 mm wide, 3-veined, with the apices subacute, contracted into slender, light yellow tails 10-12 mm long; **petals** white, cartilaginous, oblong, obscurely lobed at the broadly obtuse apex, with a longitudinal callus along the lower margin ending with a thick, retrorse process, at the base, 7-10 mm long, 3-4 mm wide, 1-veined; **lip** white, oblong, 7-11 mm long, 4.5-5.5 mm wide, the apex obtuse to truncate, recurved, the disc with 3 low, longitudinal calli, most prominent at the apex, the base cordate, thickened beneath, hinged to the column-foot; **column** semiterete, white, 6.5-9 mm long, the foot 3 mm long with an incurved extension, the anther and stigma ventral.

PERU: **Ayacucho**: road to Sapacancha, collected by Silvano in the employ of M. Arias, flowered in cultivation in Eindhoven, the Netherlands, 13 Aug. 2000, *H. ter Borch s.n.* (Holotype: MO), C. Luer illustr. 19389. Without collection data, received from M. Arias, cultivated at Ecuagenera, Gualaceo, Ecuador, *S. Dalström 2474* (MO), C. Luer illustr. 19383; same data, *S. Dalström 2475* (MO), C. Luer illustr. 19382.

This species is apparently endemic in central Peru. Vegetatively, the leaves are remarkable for the slender, elongated petiole about half the length of the acute, elliptical blade. The peduncle rises from the ramicaul above the base and reaches about as long as the petiole. The flower is borne by an elongated pedicel to near the middle of the leaf.

The shapes of the sepaline tubes of the several clones that have been seen are variable in color, in pubescence, and in proportions. The color is whitish and variously suffused with pale rose. The pubescence varies from nil, to densely short-pubescent. The callus of the petals is produced into a thick process protruding beyond the base. The lip is comparatively constant, being oblong and tricallous with a broad, recurved apex.

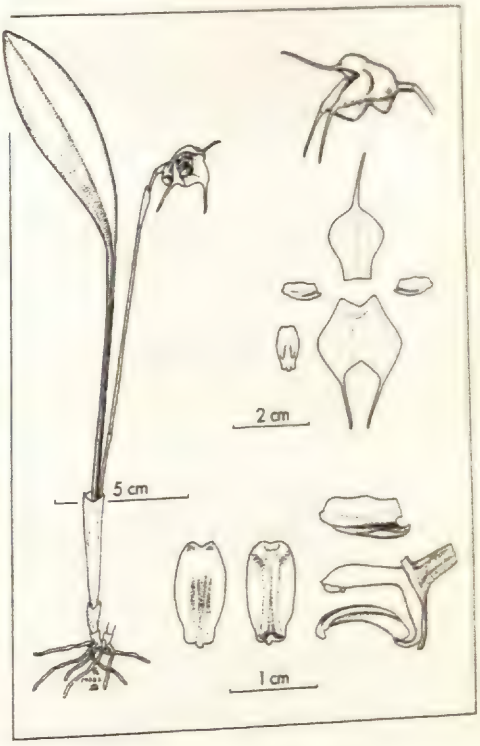


Plate 343a. Masdevallia terborchii

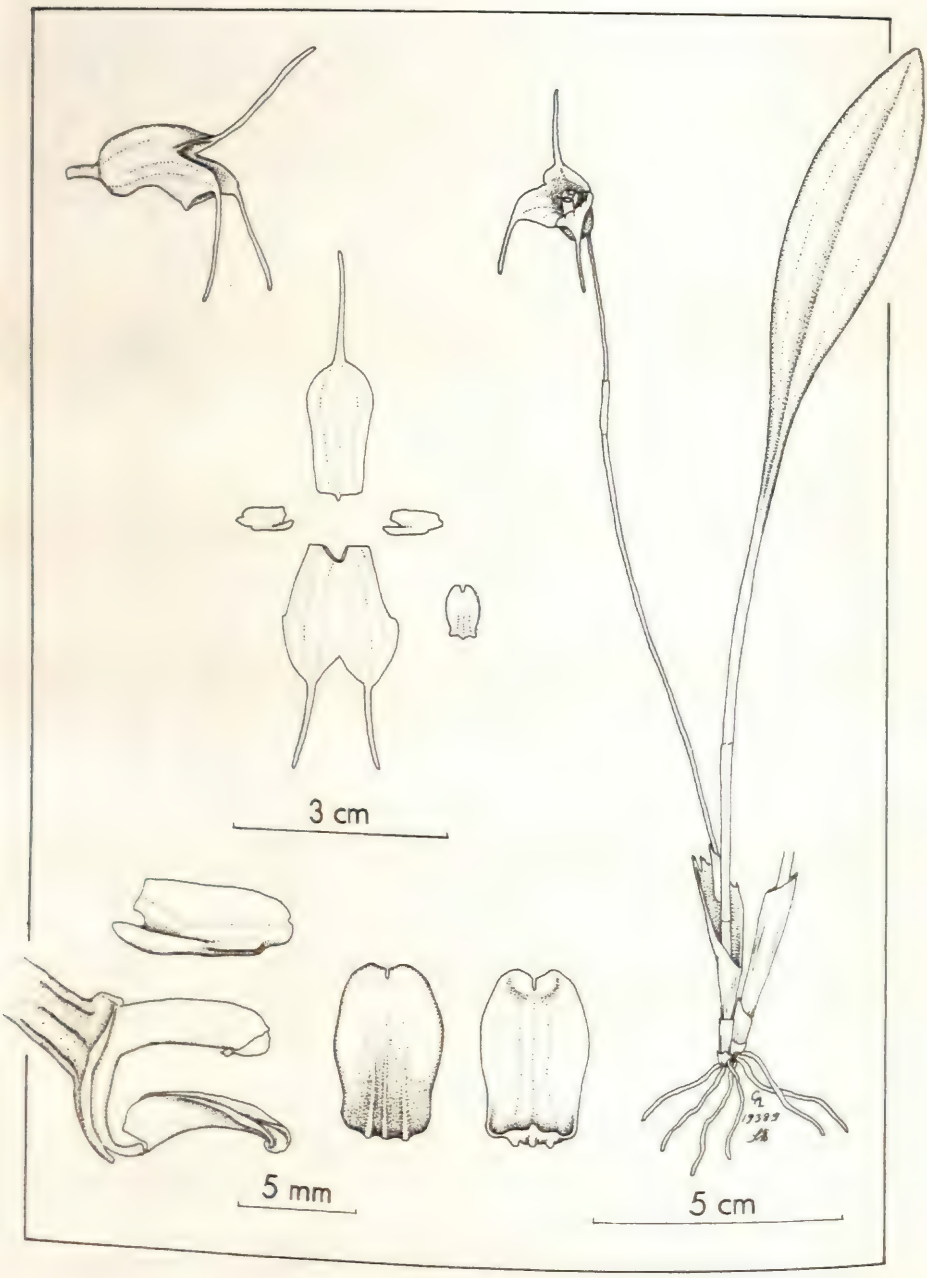


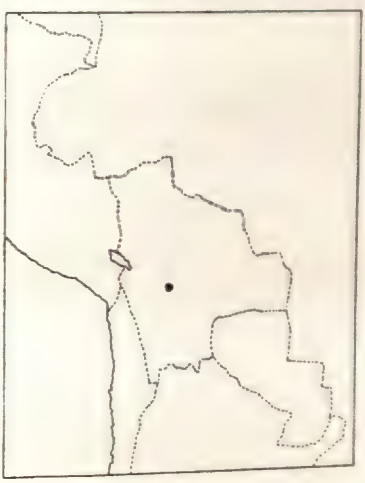
Plate 343. Masdevallia terborchii

Masdevallia tinekeae Luer & Vásquez, Lindleyana 3: 207, 1988.

Ety.: Named in honor of Tineke Rolfsema Mulder of Wageningen, The Netherlands, who first discovered this species.

Plant small, epiphytic to terrestrial, caespitose; roots slender. Ramicauls erect, slender, 1-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 5-7.5 cm long including the petiole 2-3 cm long, the blade narrowly elliptical, acute, 1-1.2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 6-6.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular 8-10 mm long; pedicel 10-15 mm long; ovary, 3-5 mm long; **sepals** white, dotted within with purple, suffused with light yellow at the base, carinate, sparsely short pubescent within above the middle, the dorsal sepal obovate, concave, 11 mm long, 8 mm wide expanded, connate to the lateral sepals for 7 mm to form a broad, sepaline cup, the rounded apex contracted into an erect or reflexed, slender, yellowish tail 3 cm long, the lateral sepals oblong, oblique, 10 mm long, 5 mm wide, connate 4 mm into a prominent, rounded mentum 2 mm deep, the free portions oblique, subacute, contracted into slender, yellowish tails 2.5 cm long; **petals** light yellow, more or less oblong, 6 mm long, 2 mm wide, the apex acute, the labellar margin with a longitudinal callus ending in a long, slender, incurved, pointed process from the base; **lip** yellow, oblong, arcuate, broadly obtuse, 6 mm long, 4 mm wide expanded, the disc with a longitudinal pair of low calli, with a central callus ending at the apex, the base rounded, deeply sulcate, hinged beneath; **column** light yellow, semiterete, 5 mm long, the foot 7 mm long including a long, incurved extension within the sepaline mentum.

BOLIVIA: **Cochabamba**: Prov. of Chapare: epiphytic in cloud forest northeast of Cochabamba, alt. 2800 m, 18 Jan. 1988, *C. Luer, J. Luer, T. Mulder, D. Mulder & A. Vogel 12885* (Holotype: MO); same area, alt. 2850 m, 6 Jan. 1994, *S. Dalström & J. Sönnemark 2011* (MO).



This species, apparently endemic in central Bolivia, was first discovered in 1988 by Tineke Mulder in a forest that had been visited by botanists repeatedly for the past century. *Masdevallia tinekeae* is very closely related to *M. solomonii*, but it is readily distinguished from the latter by white flowers spotted with purple instead of orange and striped in brown; a sparse instead of a dense pubescence; and a sharply pointed labellar tooth instead of a narrowly truncate tooth.

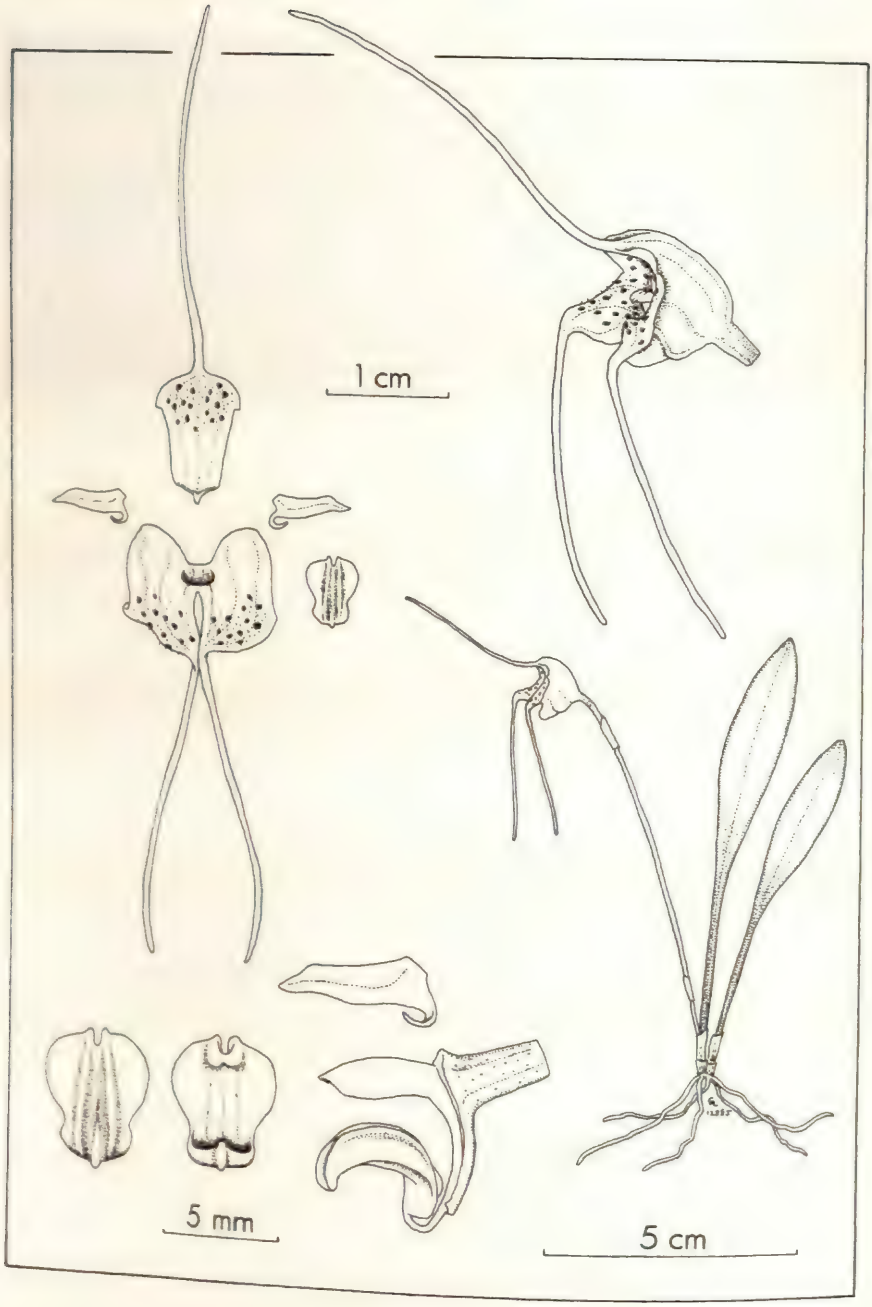


Plate 344. Masdevallia tinekeae

Masdevallia trautmanniana Luer & Portilla, Monogr. Syst. Bot. Missouri Bot. Gard. 76: 153, 1999.

Ety.: Named for Günter Trautmann of Stuttgart, Germany.

Plant medium in size for the subsection, epiphytic, caespitose; roots slender; ramicauls blackish, slender, erect, 1-1.5 cm long, enclosed by 2-3 loose, black, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 7-9 cm long including the blackish petiole 2.5 -3 cm long, the blade elliptical, subacute to obtuse, 1.5 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 3 cm long, with a bract at the base, from low on the ramicaul; floral bract tubular, 7 mm long; pedicel 5-7 mm long; ovary 4.5 mm long; **sepals** pale dull yellow, lightly suffused with pale rosy orange, glabrous, the dorsal sepal oblong, 16 mm long, 8 mm wide, connate to the lateral sepals for 12 mm to form a cylindrical tube, the obtuse apex contracted into a forwardly directed, slender, yellowish tail 18 mm long, the lateral sepals oblong, 25 mm long, 10 mm wide, connate 15 mm, the free portions rounded, contracted into tails 11-12 mm long; **petals** white, oblong, 7 mm long, 2.5 mm wide, the apex subtruncate, obscurely bilobed, the lower margin with a longitudinal callus, ending in an acute, retrorse tooth beyond the base; **lip** rose, narrowly oblong, 8 mm long, 2 mm wide, the apex subacute, slightly recurved, the disc with a pair of low, longitudinal calli from the thickened base to near the apex, the base truncate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 3 mm long with the extension 1 mm long.

ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, alt. 2000 m, collected Feb. 1997 by Hugo Medina, cultivated at Ecuagenera, Gualaceo, Ecuador, Oct. 1999, *J. Portilla 17* (Holotype: MO), C. Luer illustr. 19245.

This species is apparently endemic in southeastern Ecuador. Vegetatively, it is characterized by small, elliptical, petiolate leaves borne by short, blackish ramicauls. The short peduncle reaches about the length of the petiole and bears a pale, salmon-colored flower with relatively short, forwardly directed tails. The basal tooth of the petals is acute and elongated beyond the base. Most distinctive is the narrowly oblong lip with a pair of calli along nearly the entire length.

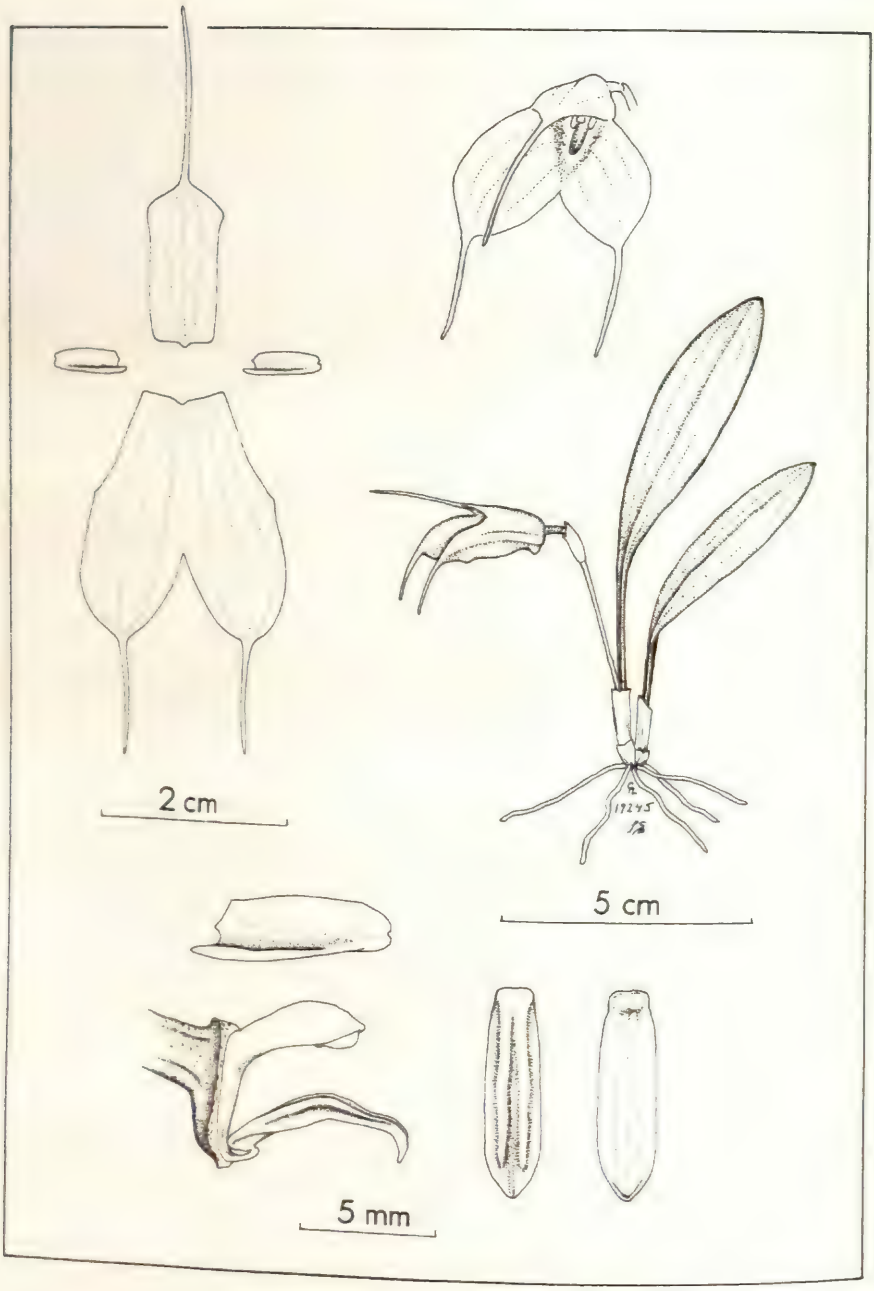


Plate 345. Masdevallia trautmanniana

Masdevallia trigonopetala Kraenzl., Bull. Misc. Inform. 105, 1925.

Ety.: From the Greek *trigonopetalon*, "a triangularly shaped petal," referring to the petals.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish slender, erect, 0.5-1 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect coriaceous, 3-6 cm long including the petiole 1-1.5 cm long, the blade narrowly obovate, obtuse, 0.3-0.5 cm wide, gradually narrowed below into the slender, blackish petiole. **Inflorescence** a solitary flower borne by a slender, erect pedicel 2.5-3 cm long, with a bract near the base, from low on the ramicaul; floral bract 5 mm long; pedicel 6 mm long; ovary 2.5 mm long; **sepals** white, glabrous, the dorsal sepal 8-13 mm long, 3.5 mm wide, connate to the lateral sepals for 7-8 mm to form a cylindrical sepaline tube, the acute, triangular free portion acuminate into a thick, yellow tail 5-10 mm long, the lateral sepals oblong, 18-20 mm long including the tails, connate 6 mm into a lamina 9 mm wide, the acute apices contracted into tails similar to that of the dorsal sepal; **petals** white, subtriangular, 4 mm long, 2 mm wide, the broadly rounded or obtuse apex minutely apiculate, the labellar margin with a thick, longitudinal carina ending in a retrorse tooth above the narrow, unguiculate, lower third; **lip** white, suffused with yellow at the apex and base, oblong, 4 mm long, 2 mm wide, the obtuse apex recurved, with a low medial callus, the sides recurved, the disc with a low, thick pair of longitudinal calli, the base subcordate, hinged beneath; **column** white, semiterete, 3 mm long, the foot 2 mm long with an incurved extension.

COLOMBIA: Without locality: collected by *F.C. Lehmann 345* (Holotype: K). **Putumayo**: near San Francisco, alt. ca. 1700 m, Jan. 1981, *P. Ortiz 988* (herb. P. Ortiz).
ECUADOR: **Sucumbíos**: below La Bonita, alt. 1700 m, Mar. 1996, *S. Dalström, S. Ingram & K. Ferrell-Ingram 2277* (MO). **Zamora-Chinchipe**: cloud forest between Loja and Zamora, alt. 1500 m, Oct. 1976, collected by A. Andreetta & M. Portilla 1705, cultivated in Cuenca, 16 Feb. 1979, *C. Luer 3969* (SEL); Valle de Zamora, alt. 1000 m, collected by A. Andreetta & M. Portilla, cultivated at Paute, 24 May 1988, *C. Luer 13623* (MO).

This species was collected by Consul Lehmann, without locality or number, but his painting of this species, *t. 724*, is at Kew. *Masdevallia trigonopetala* occurs infrequently on the eastern slopes of the Andes of Ecuador and southern Colombia.

Vegetatively similar to the majority of the small or medium-sized species of the section, this species is related to *M. tubulosa*. The small white, tubular flower is superficially similar to that of *M. minuta* or *M. tubulosa*, but the triangular petal of this species is diagnostic. The broad callus along the labellar margin ends in a subacute tooth well above the unguiculate base. The oblong lip appears pandurate because of reflection of the sides.

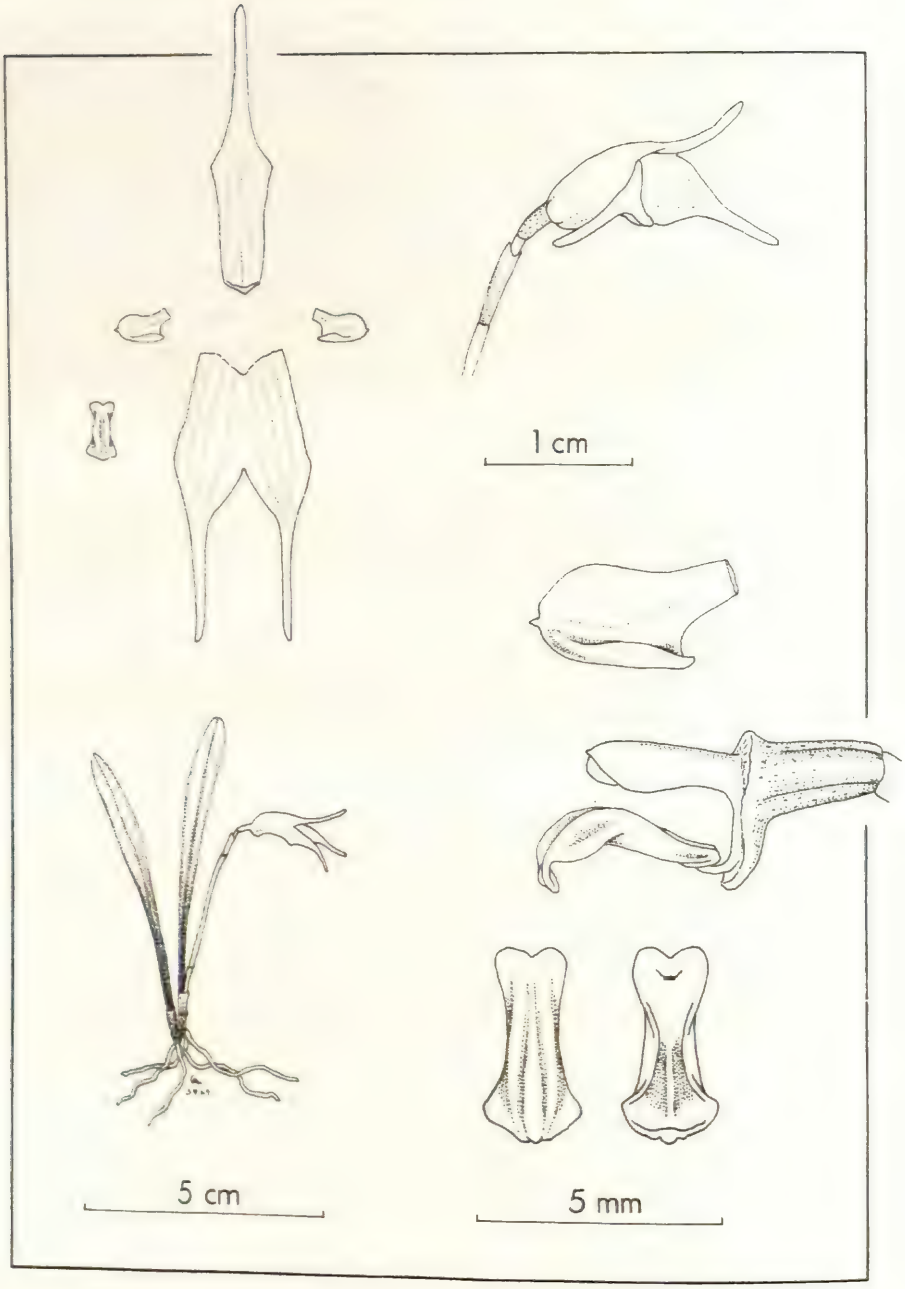


Plate 346. Masdevallia trigonopetala

Masdevallia truncata Luer, Lindleyana 8: 55, 1993.

Ety.: From the Latin *truncatus*, "truncate," referring to the lip.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 0.5-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 5-7 cm long including the petiole 1.5-2.5 cm long, the blade narrowly elliptical, subacute, 0.7-0.9 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single flower, borne by a slender, erect peduncle 6-6.5 cm long, with a bract near the base, from near the base of a ramicaul; floral bract tubular, 6 mm long; pedicel 10-12 mm long; ovary 5 mm long; **sepals** yellow, flecked with orange-brown, especially along the veins, glabrous, membranous, the dorsal sepal obovate, shallowly concave, 11 mm long, 6 mm wide, connate to the lateral sepals for 6.5 mm to form a short, sepaline tube,the apex acute, contracted into a slender, yellow, forwardly directed tail ca. 17 mm long, the lateral sepals ovate, oblique, acute, 11 mm long, 5 mm wide, connate 4 mm, the apices contracted into slender tails similar to that of the dorsal sepal; **petals** yellow, oblong, 4.5 mm long, 2 mm wide, the apex obtuse, obscurely lobed, the labellar margin with a longitudinal callus ending in a small process above the base; **lip** yellow, suffused with brown at the apex, oblong, 5.5 mm long, 2 mm wide, the apex truncate, lightly revolute, without an obvious callus, the disc shallowly channeled between a low pair of longitudinal calli on the middle third, the base subcordate, hinged beneath; **column** yellow, semiterete, 4.5 mm long, the foot with a slender, incurved extension, 1 mm long.

ECUADOR: **Morona-Santiago**: without collection data, purchased in Germany from a lot of unidentified, imported plants, cultivated at Putte, The Netherlands, Feb. 1992, *J. Schoonen 9201* (Holotype: MO), C. Luer illustr. 16231.

This apparently rare, small species, was purchased among a collection of plants from southeastern Ecuador. Unfortunately, no collection data are known.

It is related to several species with short, sepaline tubes such as the white *M. leucantha*, the purple *M. hymenantha*, or the black-lipped *M. melanoglossa*. *Masdevallia truncata* is distinguished by the yellow sepals that are flecked with orange-brown, especially along the veins, slender tails longer than the blades, a lip with a very small tooth above the base, and an oblong, truncate lip.

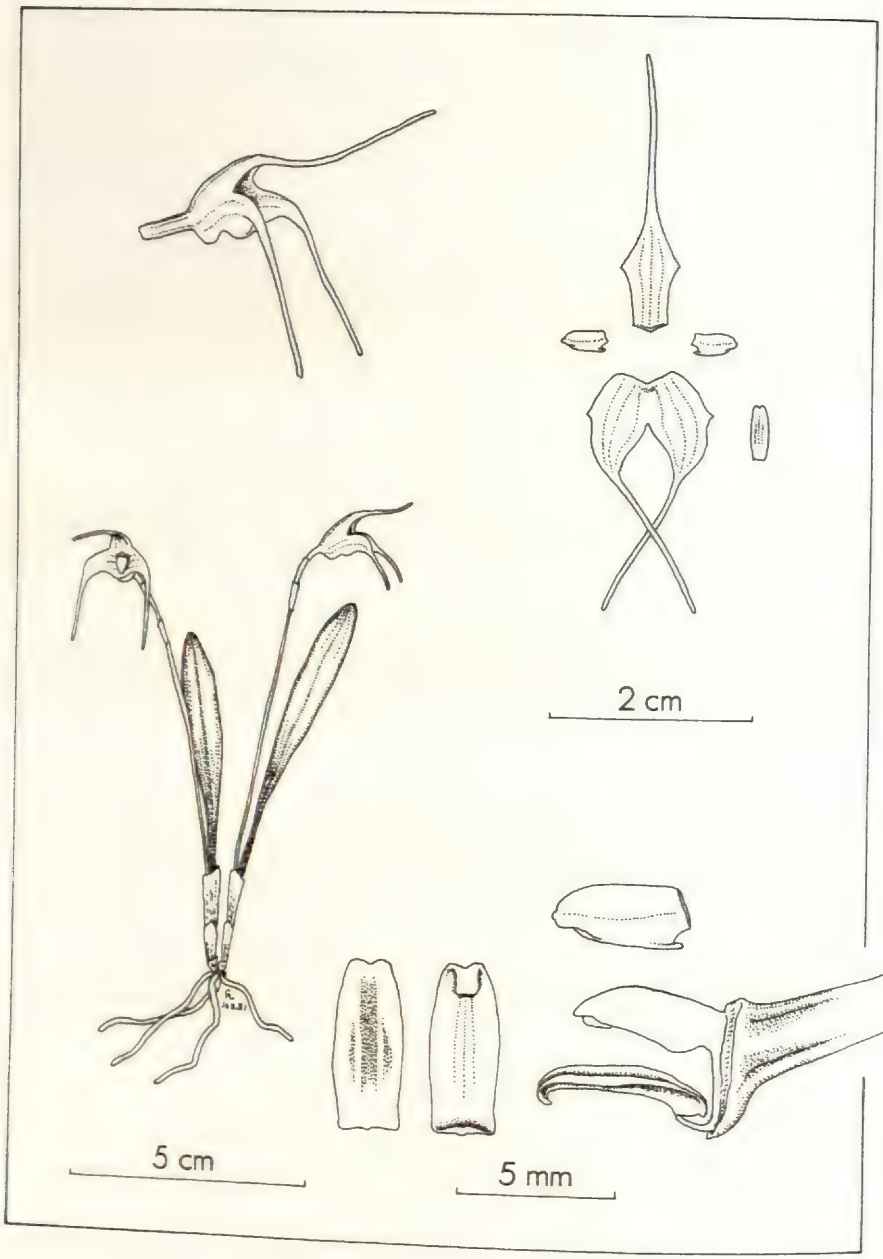


Plate 347. Masdevallia truncata

Masdevallia tubulosa Lindl., Orch. Linden. 4, 1846.

Ety.: From the Latin *tubulosus*, "tubular," referring the slender, sepaline tube.

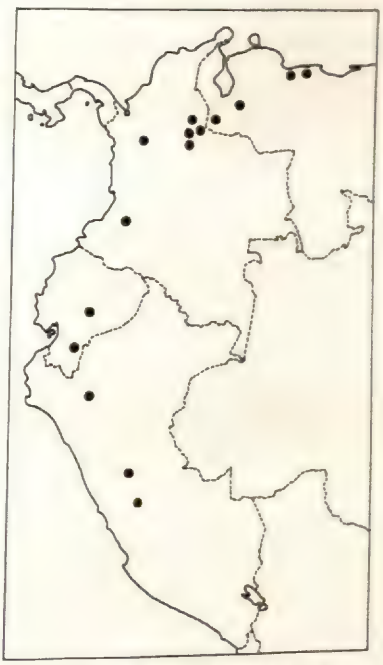
Syn.: *Masdevallia stenantha* Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 455, 1899.
Ety.: From the Greek *stenanthos*, "with narrow flowers," referring to the flower.

Syn.: *Masdevallia casta* Kraenzl., Notizbl. Bot. Gart. Berlin 8: 128, 1922.
Ety.: From the Latin *castus*, "pure," referring to the pure white color of the flowers.

Syn.: *Masdevallia syringodes* Luer & Andreetta, Phytologia 42: 467, 1979.
Ety.: From the Greek *syringodes*, "like a pipe," referring to the slender sepaline tube.

Syn.: *Masdevallia tubulosa* Lindl. subsp. *syringodes* (Luer & Andreetta) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 16: 38, 1986.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 1-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect to suberect, coriaceous, 4-12 cm long including the blackish petiole 1.5-4.5 cm long, the blade narrowly elliptical, acute, 7-17 mm wide, gradually narrowed below into the petiole. **Inflorescence** a solitary flower borne by an erect, slender peduncle 7-11 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 5-8 mm long; pedicel 8-11 mm long; ovary 5-10 mm long; **sepals** white, glabrous, the blade of the dorsal sepal 15-25 mm long, 4-5 mm wide, connate to the lateral sepals for 12-19 mm to form a cylindrical, sepaline tube, the triangular free portion gradually narrowed into a slender, white to yellowish tail 1.5-3 cm long, the lateral sepals connate 12-18 mm into a bifid, narrowly oblong lamina, 8-10 mm wide, forming a very shallow mentum with the column-foot, the ovate-triangular free portions contracted into slender tails similar to that of the dorsal sepal; **petals** white, oblong, 4-6 mm long, 1.5-1.75 mm wide, the apex truncate, tridentate, the labellar margin with a low, longitudinal callus ending in a short, blunt process a short distance above the base; **lip** white to yellow, oblong, 5-6 mm long, 2-2.5 mm wide, the apex obtuse to rounded, the disc with a low pair of longitudinal calli, the base sub-cordate, hinged beneath; **column** white, semiterete, 4-5 mm long, the stout foot 1-1.5 mm long with a short, incurved extension.



VENEZUELA: **Mérida**: epiphytic in Páramo de la Culata, alt. 11,000 ft., July-Aug. 1842, *J. Linden 685* (Holotype: K); "Mérida," alt. 6,000 ft., 1846, *L. Schlim 1240* (K); Mérida, Mucujun Valley near El Valle, alt. 2100 m, 17 Nov. 1953, *J. Renz 8098* (BAS). **Aragua**: near Colonia Tovar, 1854-55, *A. Fendler 1370* (AMES, K, MO). **Táchira**: Río Copas, between Revanche and Copas, alt. 2000 m, 13 May 1951, *J. Renz 6959* (BAS); Fundación, Río Quininmari, alt. 2600 m, 16 May 1951, *J. Renz 2027* (BAS); Páramo de Tamá, alt. 2300-2450 m, 22 May 1967, *J.A. Steyermark & G.C.K. & E. Dunsterville 98679* (AMES). **Dist. Fed.**: between Tovar and Puerto Maya, alt. 2000 m, 18 July 1959, *J. Renz 9547* (BAS); northwest of Colonia Tovar near the border with Aragua, alt 2000-2200 m, 12 July, 1963, *J.A. Steyermark 91546* (AMES, VEN).
COLOMBIA: **Norte de Santander**: epiphytic in Páramo de Mefué, alt. 2500 m, 12 May 1982, *C. Luer, J. Luer & R. Escobar 7797* (AMES, SEL); same area, alt. 2500 m, 12 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10285* (MO); Alto de Santa Inéz, alt. 2100 m, 13 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10315* (MO); below Páramo de Jurisdicciones, alt. 2600 m, 10 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10224* (MO); Alto de San Francisco, alt. 2900 m, 11 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10258* (MO). **Santander**: without locality, *Kalbreyer 1176* (holotype of *M. casta* destroyed at B); east of Bucaramanga, alt. 2750 m, 4 Nov. 1981, *C. Luer, J. Luer & R. Escobar 6584* (SEL); same locality, alt. 2550 m, 7 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10204* (MO). **Antioquia**: Río Dulce between Narino and Pensilvania, alt. 2000 m, Dec. 1891, *F.C. Lehmann 7033* (K); Yarumalito, alt. 2350 m, 15 May 1985, *C. Luer, R. Escobar & E. Valencia 11382* (MO). **Cauca**: epiphytic near Hacienda de Sotará, near Popayán, alt. 2000 m, *F.C. Lehmann 6740* (holotype of *M. stenantha*: K; isotypes: AMES, NY).

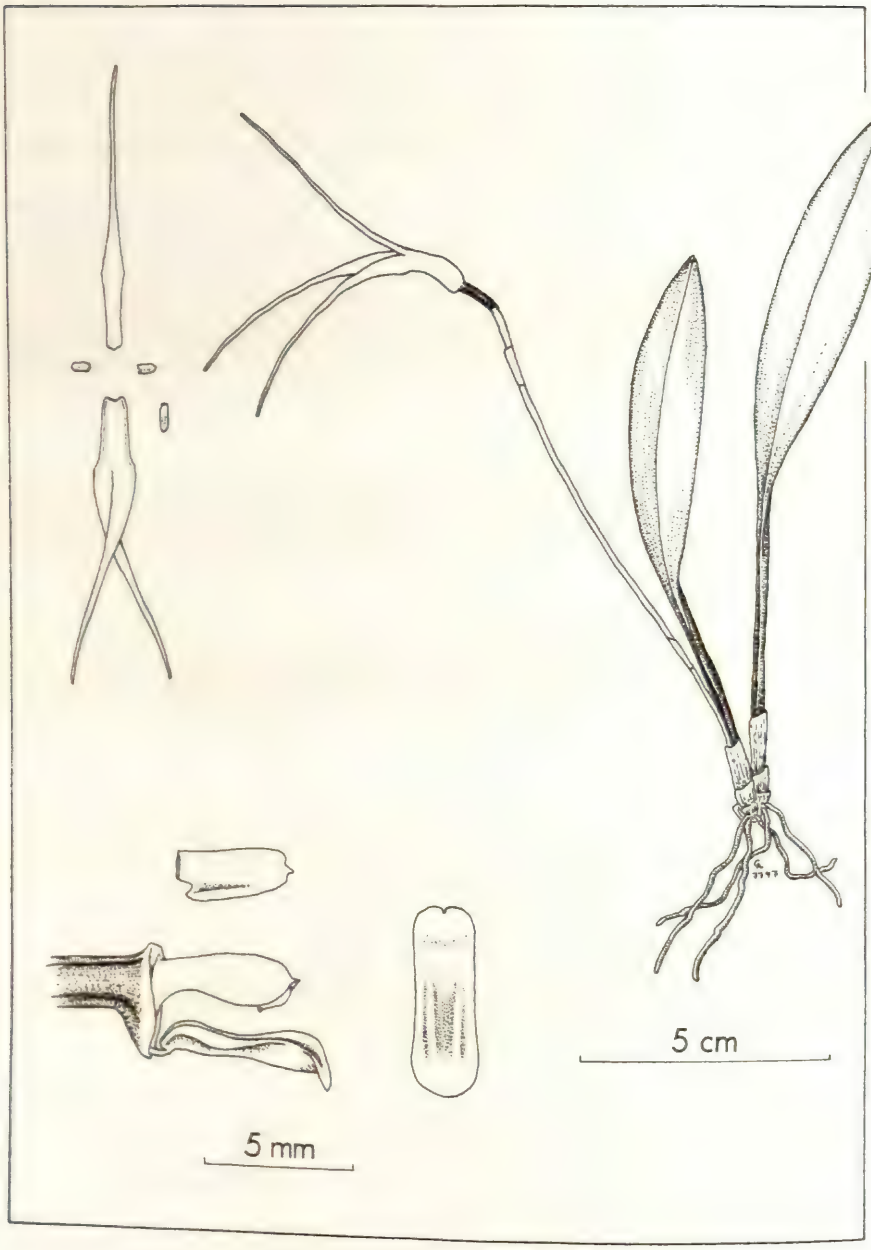


Plate 348. Masdevallia tubulosa

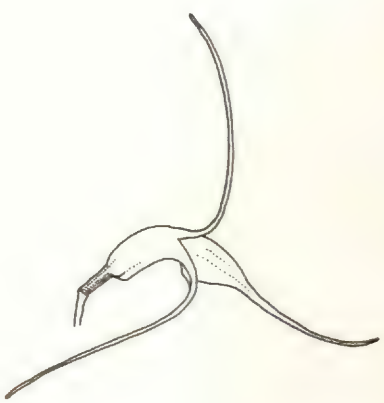
ECUADOR: **Morona-Santiago**: near Cuyes, alt. 1500-1800 m, Mar. 1978, cultivated by A. Andreetta in Cuenca, 11 Feb. 1979, *C. Luer 3968* (holotype of *M. syringodes*: SEL). **Zamora-Chinchipe**: between Loja and Zamora, alt. 1500 m, collected by B. Malo, cultivated at Tarqui, 22 Sept. 1980, *C. Luer 5572* (SEL); between Loja and Zamora, alt. 2250 m, 22 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13588* (MO); north of Valladolid, below Cruz Chica, alt. 2100 m, 18 May 1986, *D. D'Alessandro 678* (MO).

PERU: **Amazonas**: Bongará, near Pomacochas, alt. 2000 m, 10 Aug. 1979, *W. Königer, H. Königer & J. Meza K-20c & K-20-e* (K, M, SEL, USM, W); Bongara, collected by M. Arias, cultivated in Munich by W. Königer, 28 Oct. 1985, *C. Luer 11451* (MO). **Huánuco**: Muna, alt. 6,600 ft., 20 Mar. 1959, *F. Woytkowski 5244* (AMES, MO); Tingo Maria, Huaguin, alt. 2700 m, 1984, cultivated Feb. 1991, *W. Königer, H. Königer & M. Arias K-110a* (M); Carpish Mountains, alt. 2900 m, cultivated in Munich by W. Königer, 25 Oct. 1985, *C. Luer 11452* (MO). **Junín**: Puente Yanango, alt. 1900 m, 1982, cultivated June 1989, *W. Königer, H. Königer & M. Arias K-73b* (M).

Masdevallia tubulosa is relatively common in the forests of the Eastern Cordillera of Colombia and adjacent Venezuela, but it becomes less frequent and local in southern Colombia. In Ecuador and Peru it is represented by a variation with shorter, thicker tails that was recognized as *M. syringodes*. Here more typical variations with the longer, slender tails are outnumbered.

The snow white flowers held about as high as the tips of the leaves by a slender peduncle are characterized by a narrow sepaline tube with the narrowly oblong-ovate, free portions contracted into slender tails of varying length. Lehmann's beautiful and accurate watercolor painting (*6740*) with his intended name "M. cyphosolenium" is at Kew.

The petals are variable from oblong to narrowly oblong and curved. The marginal callus often terminates with an obtuse process above the base, but more frequently, no process is developed. The lip is simply oblong with an obscure pair of longitudinal calli.



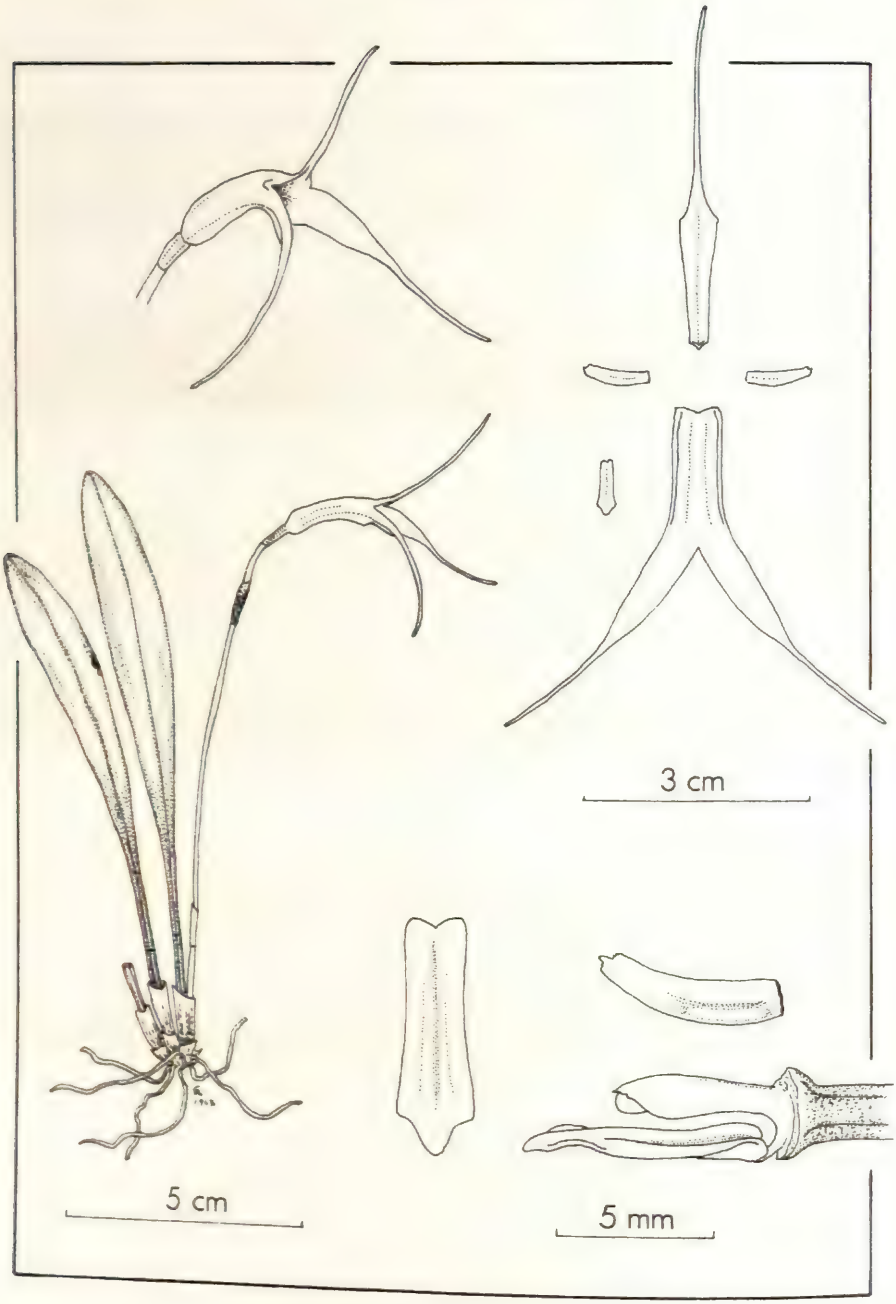


Plate 349. Masdevallia tubulosa

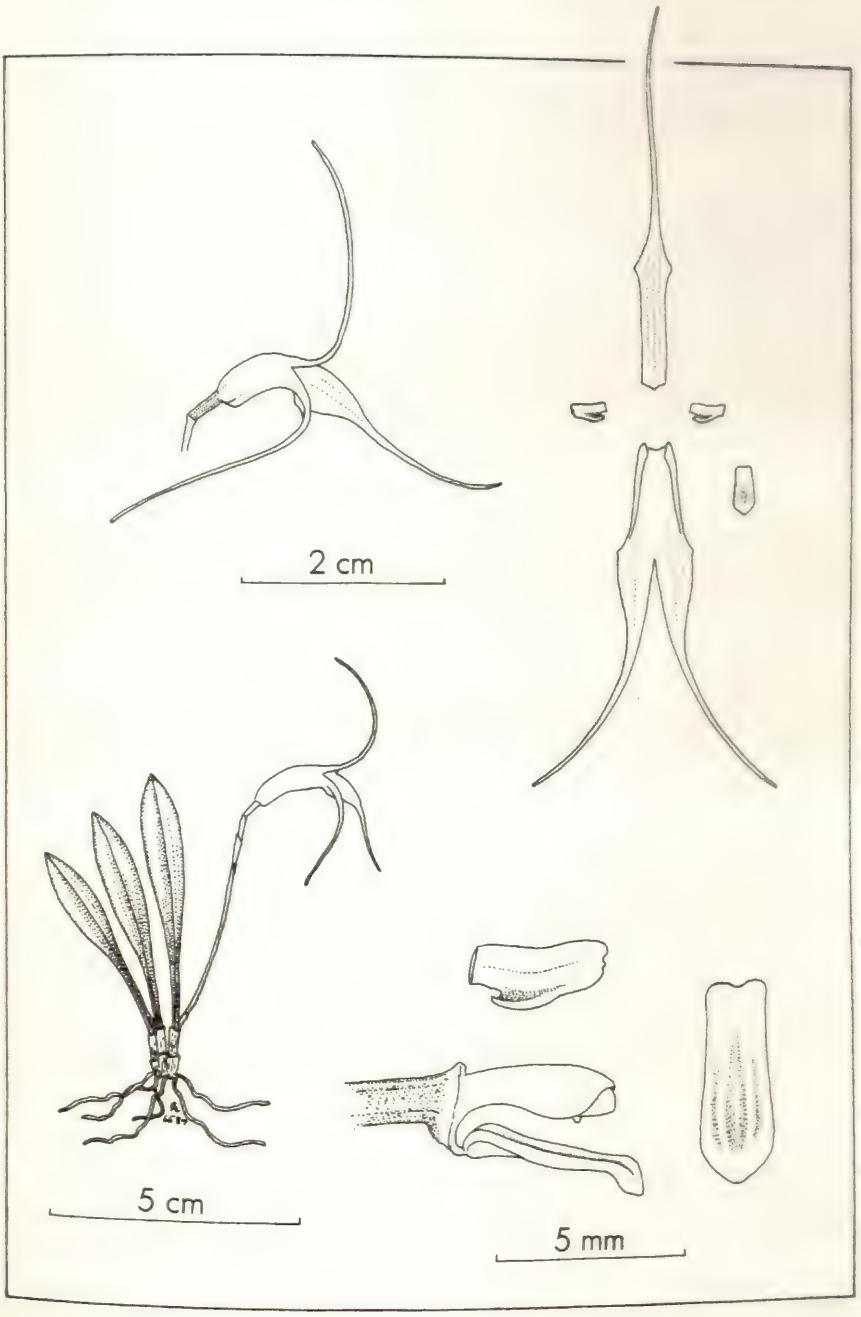


Plate 350. Masdevallia tubulosa

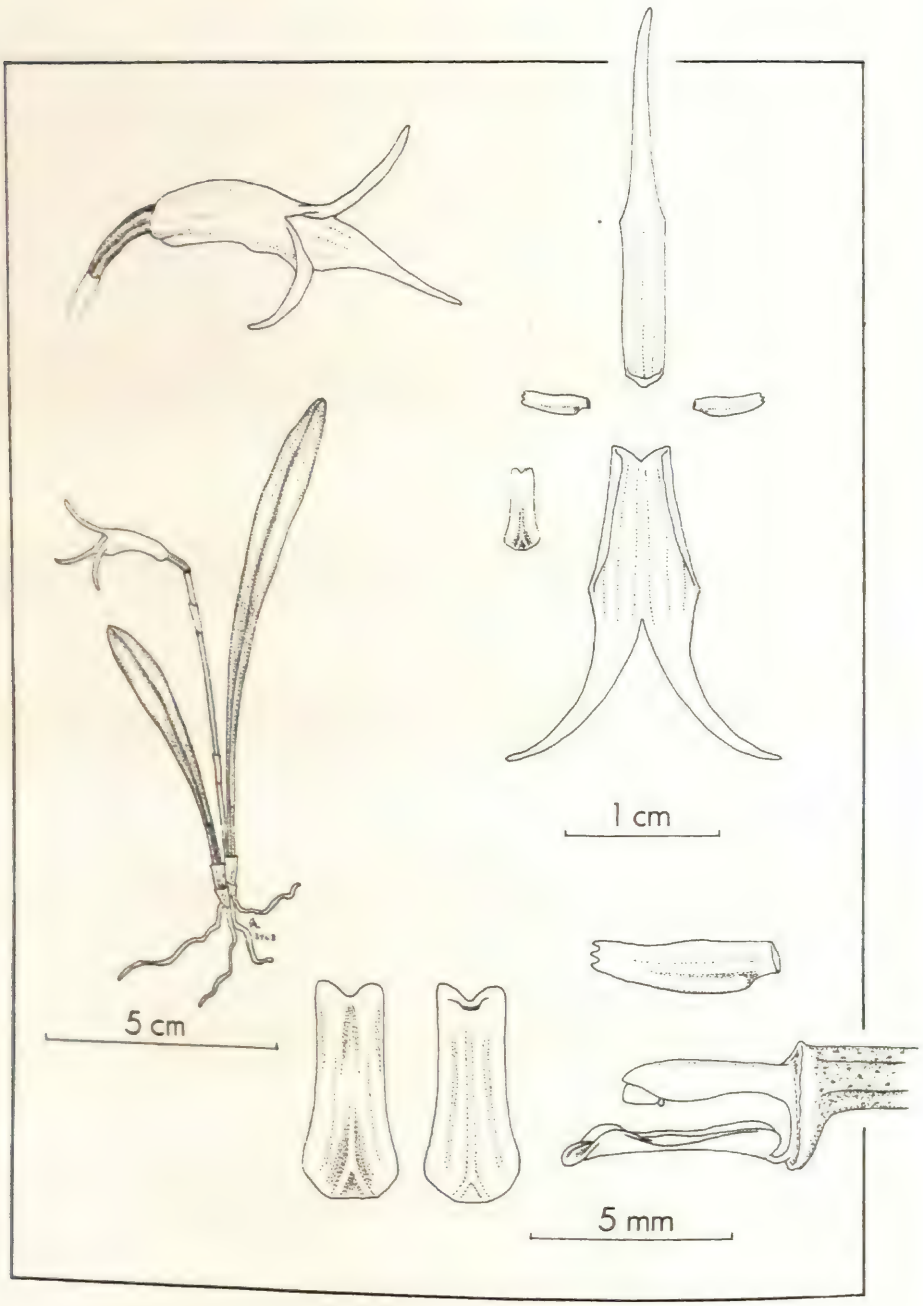


Plate 351. Masdevallia tubulosa
(*subsp.* syringodes)

Masdevallia uncifera Rchb.f., Otia Bot. Hamburgensia 1: 16, 1878.

Ety.: From the Latin *uncifer*, "hook-bearing," referring to the tooth on the petals.

Syn.: *Masdevallia chrysoneura* Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 453, 1899.
Ety.: From the Greek *chrysoneuron* "golden nerved," referring to orange veining on the sepals.

Syn.: *Masdevallia flaccida* Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 425, 1921.
Ety.: From the Latin *flaccidus*, "flaccid," referring to the habit of the plant described.

Syn.: *Masdevallia pastensis* Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 424, 1921.
Ety.: Named for the city of Pasto, near where the specimen was discovered.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, often blackish, 2-5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 8-15 cm long including the petiole 2-6 cm long, the blade narrowly elliptical, subacute, 1-2 cm wide, gradually narrowed below into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 9-16 cm long, with a bract above the base, from low on the ramicaul; floral bract 7-8 mm long; pedicel 8-13 mm long; ovary blackish, 6-8 mm long; **sepals** white to bright yellow, sometimes dotted with red, glabrous, the dorsal sepal ovate, 14-16 mm long, 7-10 mm wide, connate to the lateral sepals for 5 mm to form a gaping cup, the free portion triangular, the acute apex attenuate into a slender, decurved yellow to orange tail 30-50 mm long, the lateral sepals ovate, oblique, 14-15 mm long, 6-10 mm wide, connate 5 mm across an acute, transverse fold, forming a mentum at the base beneath the column-foot below the fold, the acute apices attenuated into slender tails 30-45 mm long; **petals** white, sometimes dotted with purple, oblong, 5-6 mm long, 1.5-2 mm wide, the truncate apex lightly bilobulate, sometimes with a small, obtuse apiculum, the lower margin longitudinally callous ending in an obtuse, incurved tooth above the base; **lip** white, marked with purple, especially at the apex, oblong, slightly subpandurate, 5.5 mm long, 2.5-3 mm wide, the apex truncate-obtuse, the apical margin revolute and callous centrally, the base truncate, hinged beneath; **column** white, dotted with purple, semiterete, 5 mm long, the foot 2 mm long with a long, incurved extension.

COLOMBIA: **Nariño**: near Pasto, *W. Jameson s.n.* (Holotype: K); La Laguna near Pasto, alt. 9,500-10,500 ft., 17 Oct. 1878, *F.C. Lehmann s.n.* (holotype of *M. flaccida*: K; isotype: W); La Laguna bei Pasto, *Klaboch s.n.* (holotype of *M. pastensis*: HBG); above La Cocha, alt. 3100 m, 3 Oct. 1959, *H.G. Barclay & P. Juajibioy 9427* (AMES, MO). **Putumayo**: Alta de Cruz above Encano, páramo, alt. 11,000 ft., 1 Nov. 1946, *M.B. Foster & R. Foster 2036* (AMES); between La Cocha and Sibundoy, alt. 3000 m, 12 Nov. 1982, *C. Luer & R. Escobar 8337* (AMES, MO, SEL); same area, 26 Jan. 1987, *C. Luer, J. Luer et al. 12533* (MO). **Cauca**: Páramo de Guanacas above Popayán, alt. 3200-3500 m, Apr. 1886, *F.C. Lehmann 6753* (lectotype of *M. chrysoneura*: K; isotypes: AMES, NY, W). **Valle del Cauca**: El Cerrito, subparamo forest below Páramo de Pan de Azúcar, alt. 3430 m, 25 Mar. 1994, *F. Silverstone & N. Paz 6658* (CUVC, MO).

ECUADOR: **Carchi**: eastern slopes of Tulcán, alt. 3200 m, 4 Feb. 1881, *F.C. Lehmann 257* (W); epiphytic in scrub cloud forest east of Tulcán, alt. 3200 m, 23 Feb. 1978, *C. Luer, J. Luer & A. Hirtz 2774* (SEL); between Tulcán and El Carmelo, alt. 3150-3300 m, 15 Apr. 1979, *B. Lojtnant, U. Molau & M. Madison 12551* (AAU, GB); epiphytic at the pass between Tulcán and El Carmelo, alt. 3200 m, 6 Apr. 1985, *C. Luer, J. Luer & A. Hirtz 11082* (MO). **Sucumbíos**: El Mirador above Playón de San Francisco, no alt., 16 Aug. 1978, *J.D. Boeke & J. Jaramillo 2686* (MO); epiphytic in scrub cloud forest above El Playón east of San Juan Andrade, alt. 3200 m, 5 Nov. 1979, *C. Luer, J. Luer & A. Hirtz 4681* (SEL); El Mirador, alt. 3600 m, Aug. 1990, *A. Hirtz et al. 4945* (MO); cloud forest between El Playón and Santa Barbara, alt. 3400 m, 20 Mar. 1991, *C. Luer, J. Luer & A. Hirtz 15219* (MO).

This species is frequent and locally abundant in southern Colombia and northernmost Ecuador at altitudes over 3000 meters above sea level. It is closely allied to the complex known as *M. laevis* with which it often grows. *Masdevallia uncifera* is recognized by the usually taller peduncle, and smaller flowers with narrower, glabrous, pale yellow sepals often veined in yellow. The sepals are shallowly connate. The petals with the uncinate process, and lips of the two concepts are similar.

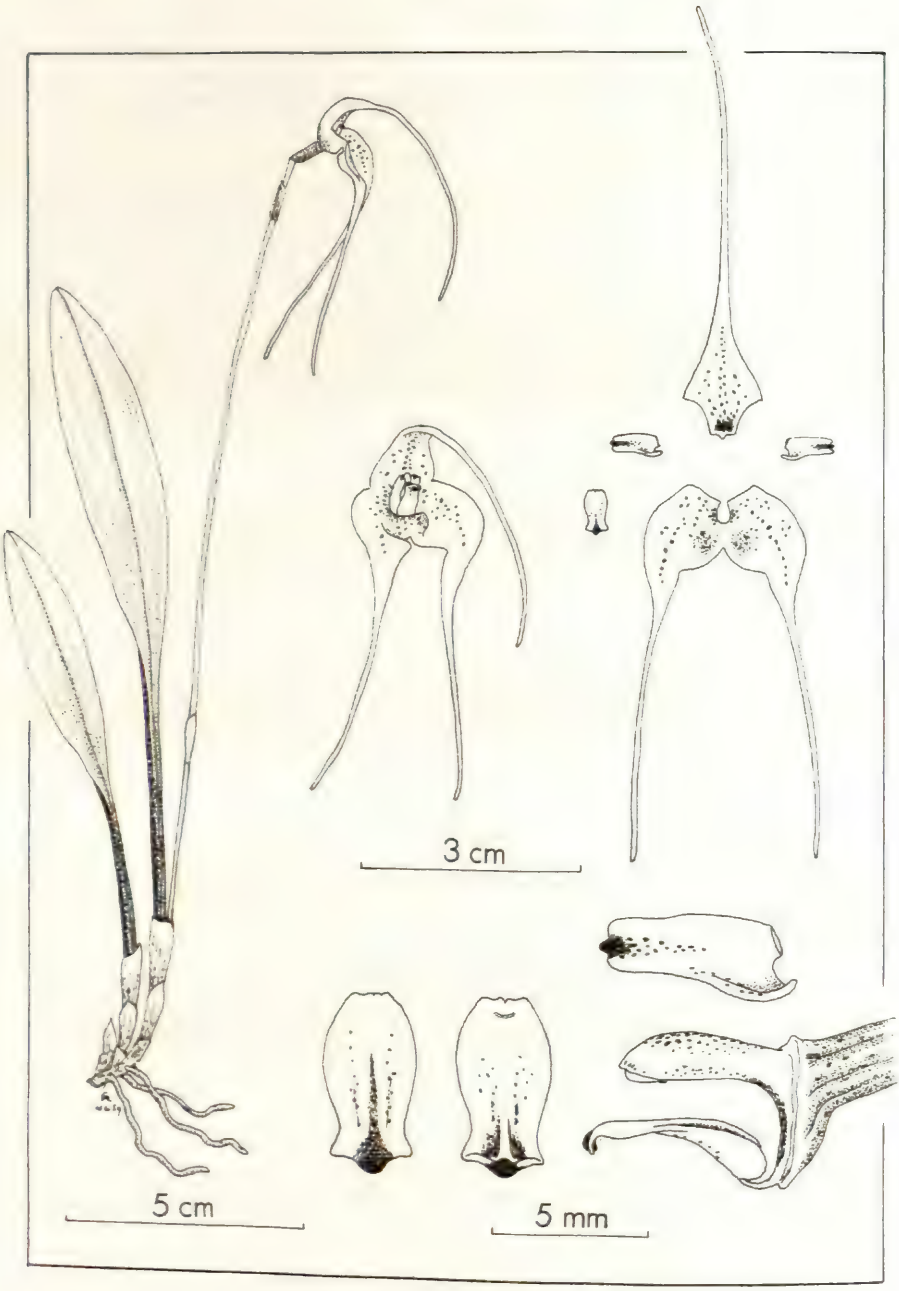


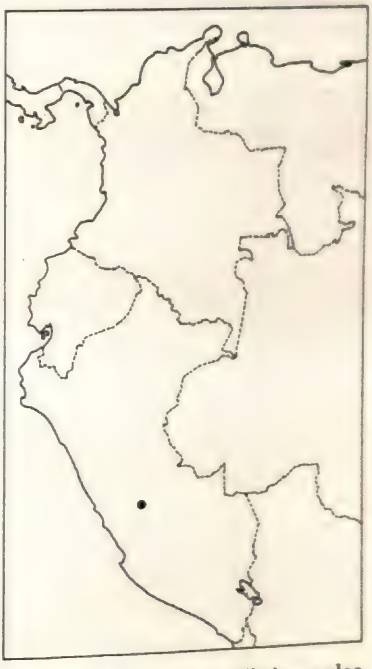
Plate 352. Masdevallia uncifera

Masdevallia uniflora Ruiz & Pav., Fl. Peruv. et Chil. Prodr. ed. 1: 122, 1794.

Ety: From the Latin *uniflorus*, "one-flowered," referring the single-flowered inflorescence.

Plant medium in size to large, epiphytic to terrestrial, shortly repent to caespitose; roots coarse. Ramicauls slender, erect, 3-8 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 7-22 cm long including the petiole 3-11 cm long, the blade elliptical, subacute, 2-4 cm wide, gradually narrowed below into the petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle, 15-30 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 10-17 mm long; pedicel 22-45 mm long; ovary 5-14 mm long; **sepals** white, light green toward the base, suffused with bright rose in varying intensities above the middle, glabrous, the dorsal sepal obovate, 18-23 mm long, 12-17 mm wide, connate to the lateral sepals for 10-12 mm to a broad, gaping, conical tube, the apex round, contracted into an erect, slender, green to maroon tail 8-17 mm long, the lateral sepals ovate, oblique, connate 10-16 mm into a lamina 20-25 mm wide, the apices obtuse, contracted into slender tails 6-10 mm long, similar to that of the dorsal sepal; **petals** white, triangular, 9-11 mm long, 22 mm wide, 6 mm wide above the base, the apex narrowly rounded to sub-bilobulate, the labellar margin with a longitudinal callus with a purple stripe, ending in a broad, oblique, retrorse, acute process above the base; **lip** creamy white, elliptical-oblong, 9-11 mm long, 5-6 mm wide, slightly narrowed below the truncate, decurved apex with a marginal callus, with lightly undulate margins, the disc shallowly sulcate between low, longitudinal calli, the base truncate, hinged beneath; **column** white, semiterete, 8 mm long, the foot 5-6 mm long, with a slender, incurved extension.

PERU: **Junín**: Tarma, "Huassa-Huassi, in rocky places," alt. ca. 2900 m, ca. 1779, *Pavón s.n.* (Holotype: MA; Isotypes: G, K, P, S, W); same area, collected by J. Meza T., ca. 1975, cultivated by J & L Orchids, Easton, CT, 12 Oct. 1977, *C. Luer 2211* (SEL); same area, cloud forest above Huasa Huasi, alt. 2900 m, 1 Feb. 1979, *C. Luer & J. Luer 3843* (AMES, MO, SEL); mountains east of Palca, road to Illic, alt. 3000 m, 13 Jan. 1987, *B. Stein, J. Kallunki & C. Díaz 3820* (MO).



Masdevallia uniflora is the first species of the genus to be discovered by Europeans, and it is the type upon which the genus was based by Ruiz & Pavón in 1794. For nearly two centuries this species had not been seen again by foreigners until local collectors began to export it about 1975. Woolward's illustration in her monograph of 1896 was made from dry specimens from the original collection.

Masdevallia uniflora is endemic in the mountains surrounding Huasa Huasi, where it is still known as "rima-rima" by the local inhabitants. Several other species of *Masdevallia* (i.e., *M. cyclotega, M. eumelia* and *M. rimarima-alba*) are also endemic in these high-altitude, scrub forests.

The showy, usually rose-suffused flowers of *M. uniflora* are held above the long-petiolate leaves by slender peduncles. Occasionally pure white flowers are seen. The sepals are connate into a broad, sepaline tube with rounded free portions terminated by short, slender tails. The petals are provided with a long, broad, retrorse process at the base. The oblong lip can be seen held erect within the broad, gaping tube.

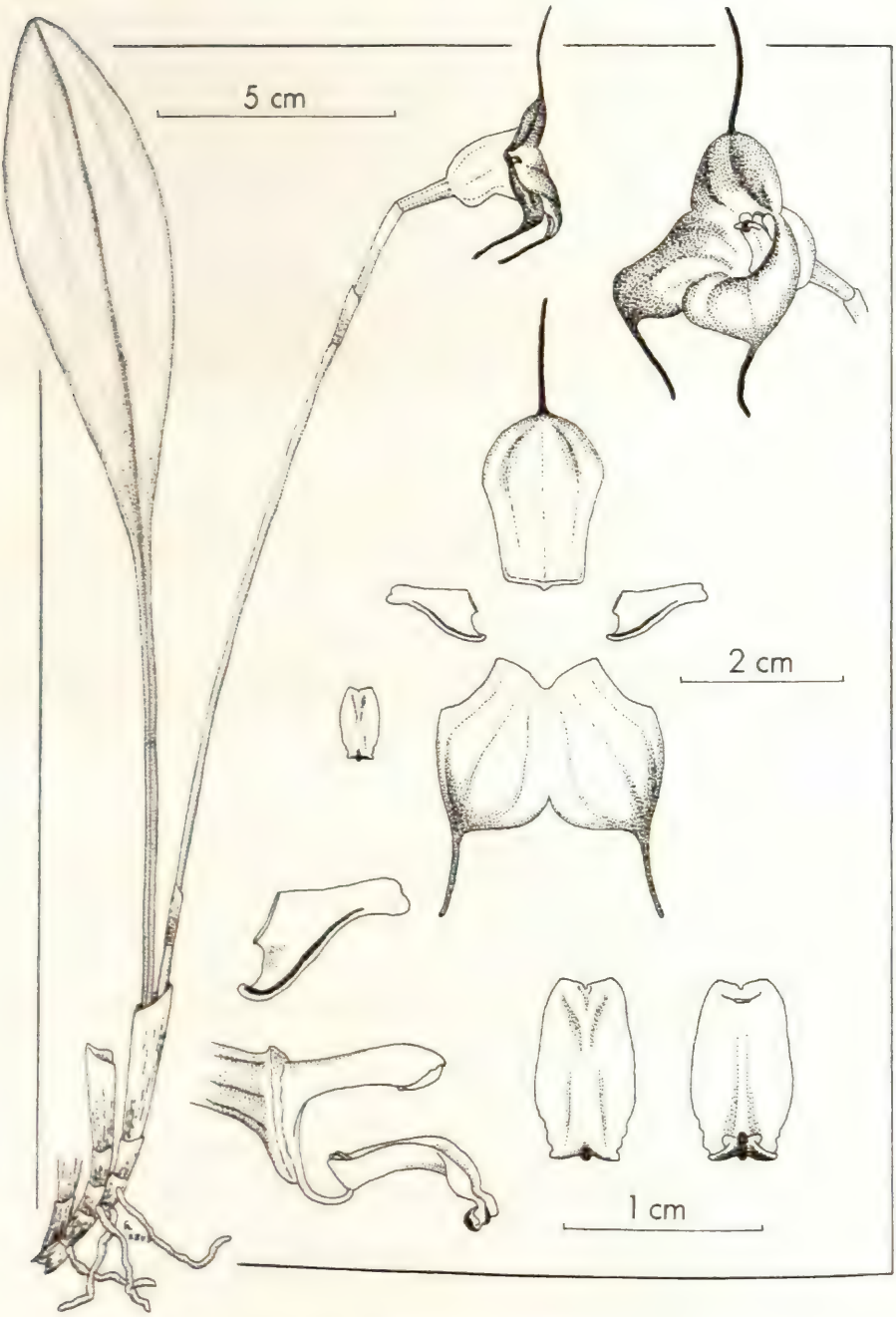


Plate 353. Masdevallia uniflora

Masdevallia urceolaris Kraenzl., Notizbl. Bot. Gart. Berlin-Dahlem 8: 132, 1922.

Ety: From the Latin *urceolaris*, "pitcher-shaped," referring the shape of the sepaline tube.

Syn.: *Masdevallia kalbreyeri* Rchb.f. ex Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 169, 1925.

Ety.: Named for the German collector Kalbreyer who collected this species,

Plant small, epiphytic, caespitose; roots slender. Ramicauls short, stout, erect, 7-18 mm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect to suberect, coriaceous, petiolate, 6-9.5 cm long including the petiole 2-3.5 cm long, the blade elliptical, obtuse, 1.5-2.5 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower, borne by a more or less horizontal, sinuous peduncle, 2-2.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 7 mm long; pedicel 8-9 mm long; ovary 4-5 mm long; **sepals** dull yellow, diffusely spotted with dull purple, glabrous externally, minutely pubescent within above the middle, the dorsal sepal oblong, concave, curved, 15 mm long, 5 mm wide, connate to the lateral sepals for 13 mm to a slightly arcuate, cylindrical tube, the apex transversely triangular, obtuse, contracted into a slender, erect, yellow-brown tail 2.5 cm long, the lateral sepals connate 10 mm into an oblong, concave, bifid lamina 15 mm long, 12 mm wide, forming a broad, shallow mentum above the mentum with the column-foot, the apices acute, contracted into tails similar to that of the dorsal sepal; **petals** yellow, spotted with purple, oblong, 6 mm long, 2.8 mm wide, the truncate obscurely dentate, the labellar margin with a longitudinal callus ending in an acute, uncinate, incurved process at the base; **lip** diffusely dotted and suffused with red-purple, elliptical, smooth, 6 mm long, 3.5 mm wide, with the apex broadly rounded, the disc shallowly concave below the middle, the base narrowly subtruncate, hinged on the end; **column** white, dotted with purple, semiterete, 5 mm long, the foot 3 mm long, with a short, incurved extension.

COLOMBIA: **Norte de Santander**: Ocaña, "La Rosa," alt. 3000 m, *Kalbreyer 545* (Holotype presumably destroyed at B; Neotype, an Isotype, is the holotype of *M. Kalbreyeri*: W); without exact locality, collected by R. Mejía, July 1973, cultivated by M. & O. Robledo at La Ceja, 29 Sept. 1977, *C. Luer 1863* (SEL); epiphytic in cloud forest below Páramo de Jurisdicciones, alt. 2600 m, 10 Nov. 1981, *C. Luer, J. Luer, R. Escobar & D. Portillo 6629* (SEL); same area, alt. 2300 m, 30 Apr. 1982, *C. Luer et al. 7657* (SEL); same collection, cultivated at Colomborquídeas, 10 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10222* (MO).

This species was first collected by Kalbreyer in the mountains around Ocaña in the Eastern Cordillera of Colombia where it is endemic. Kränzlin described the specimen *Kalbreyer 545* at B as *M. urceolaris* in 1922. He described another specimen of *Kalbreyer 545* at W as *M. kalbreyeri* in 1925. Although his descriptions of the two agree with each other, in his monograph he placed the former in his section *Urceolares* and the latter in his section *Triangulares*.

Masdevallia urceolaris grows in thick moss on the trunks of trees. The horizontal peduncle pushes through the substrate to bear the little flower nearly buried in the moss. The sepals are deeply connate into a diffusely purple-spotted, sepaline tube with a shallow, ventral dilation of the tube, and very short, free apices with slender tails.

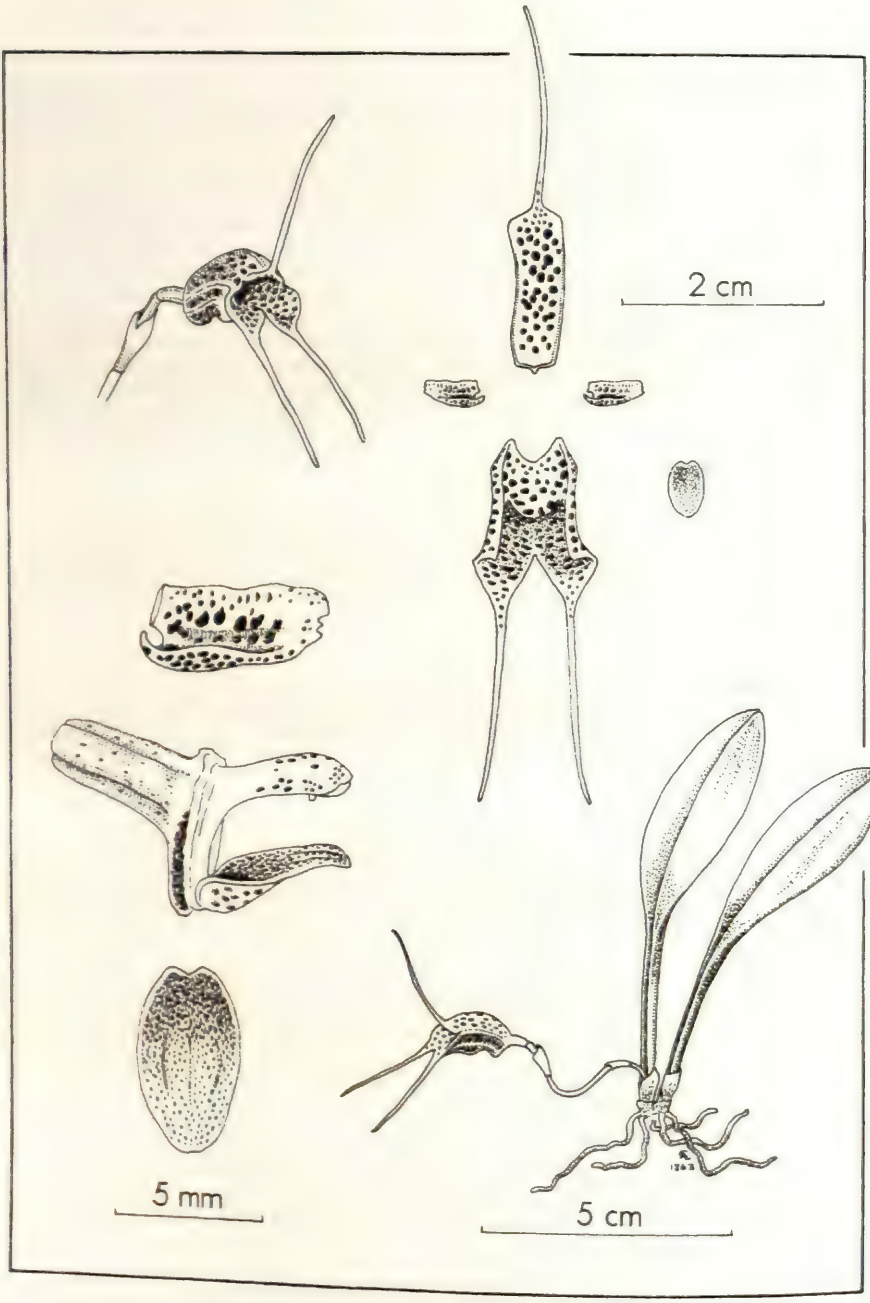


Plate 354. Masdevallia urceolaris

Masdevallia ustulata Luer, Phytologia 54: 384, 1983.

Ety.: From the Latin *ustulatus*, "singed, or scorched," referring to the yellowish flowers, suffused and veined in brown.

Plant medium in size, epiphytic to terrestrial, caespitose; roots slender. Ramicauls erect, slender, 2-4.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 8-17 cm long including the slender, 3-5 cm long petiole, the blade elliptical, subacute to obtuse, 2-3.2 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 7-15 cm long, with a bract near the base, from low on the ramicaul; floral bract 8-12 mm long; pedicel 8-13 mm long; ovary 6-9 mm long; **sepals** yellow or brown, veined in purple-brown, glabrous, the dorsal sepal obovate, 20-23 mm long, 7-8 mm wide, connate to the lateral sepals for 14-16 mm to form a cylindrical tube, the free portion triangular, the acute apex contracted into an erect, slender tail 2.5-4.5 cm long, the lateral sepals oblong-falcate, ca. 23 mm long, connate 13-17 mm into a lamina 10-15 mm wide, with a broad but shallow secondary mentum above the short primary mentum, the free portions gradually narrowed into slender, recurved tails 2.5-4 cm long; **petals** light yellow, intensely marked with purple on the labellar half, oblong, 6-7 mm long, 2-2.75 mm wide, the truncate apex bilobed, the labellar margin with a longitudinal callus ending in an acute, retrorse, uncinate tooth above the base; **lip** cream to rose, marked with purple, oblong, 6.5-7 mm long. 3.25 mm wide, the apex truncate or broadly obtuse, the base truncate, shallowly retuse, hinged on the end; **column** white with purple margins, semiterete, 6 mm long, the stout foot 3 mm long with a short, incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in cloud forest east of Paute, alt. 1700 m, 10 July 1977, *C. Luer, J. Luer, G. Luer & A. Andreetta 1660* (Holotype: SEL); new road west of Macas to Guamote, alt. 2300 m, 2 Mar. 2001, *C. Luer, J. Luer & A. Hirtz 19618* (MO). **Carchi**: epiphytic in cloud forest above Maldonado, alt. 2300 m, 2 April 1984, *C. Luer, S. Dalström & T. Höijer 9939* (MO); same area, alt. 2500 m, 24 Feb. 1992, *S. Dalström 1550* (MO). **Napo**: near Santa Rosa between Baeza and Lago Agrio, alt. 1700 m, 18 Oct. 1971, *B. MacBryde 715* (AMES); cloud forest north of Baeza, alt. 1500 m, 10 Aug. 1978, *C. Luer, J. Luer, A. Hirtz & A. Andreetta 3214* (SEL). **Pastaza**: wet forest along Río Zuñag, alt. 1900 m, 26 Feb. 1990, *S. Dalström & Årnby 1422* (MO). **Bolívar**: epiphytic in cloud forest north of Chillanes, alt. 2650 m, 25 Mar. 1984, *C. Luer, S. Dalström, T. Höijer, J. Kuijt & A. Hirtz 9729* (MO); northwest of Guaranda, alt. 3100 m, 26 March 1984, *C. Luer, A. Hirtz, S. Dalström, T. Höijer & J. Kuijt 9748* (MO); west of Salinas, alt. 2900 m, 12 Mar. 1991, *C. Luer, J. Luer, A. Hirtz et al. 15003* (MO). **Zamora-Chinchipe**: Cordillera de Nanguipa. north of Nambija. alt. 1400 m, June 1991, *A. Hirtz 5511* (MO).

COLOMBIA: **Santander**: west of Velez toward Landazuri, alt. 2400 m, 5 May 1984, cultivated at Colomborquídeas, 12 Mar. 1989, *C. Luer, J. Luer, R. Escobar & E. Valencia 14131* (MO). **Putumayo**: cloud forest between La Cocha and Sibundoy, alt. 2700 m, collected by O. Ospina, cultivated at Sibundoy, 5 Aug. 1978, *C. Luer 3093* (SEL); same collection, cultivated at Colomborquídeas, 11 May 1985, *C. Luer 11339* (MO).

PERU: **Amazonas**: Bagua, Cordillera Colán, alt. 7,750-8,075 ft., 16 Oct. 1978, *P. Barbour 4097* (MO); between Chachapoyas and Rodriguez de Mendoza, Molinopampa, alt. 2200 m, 5 Aug. 1978, *W. Königer, H. Königer, B. Würstle & J. Meza K-5b* (M, USM, W, Herb. H. Königer). Luya, between Chachapoyas and Leimebamba, near Samanga, San Antonio, alt. 2500 m, 10 Aug. 1978, *W. Königer, H. Königer, B. Würstle et al. K-7b* (M, USM, W, Herb. H. Königer). **Cajamarca**: Parqué Nacional de Cutervo, alt. 2600 m, 10 Aug. 1987, *C. Días S. & H. Osores 2604* (MO). **Pasco**: between Oxapampa and Villa Rica, alt. 2100-2500 m, 1 May 1982, *A. Gentry & D. Smith 35890* (F, MO, SEL, SMF).

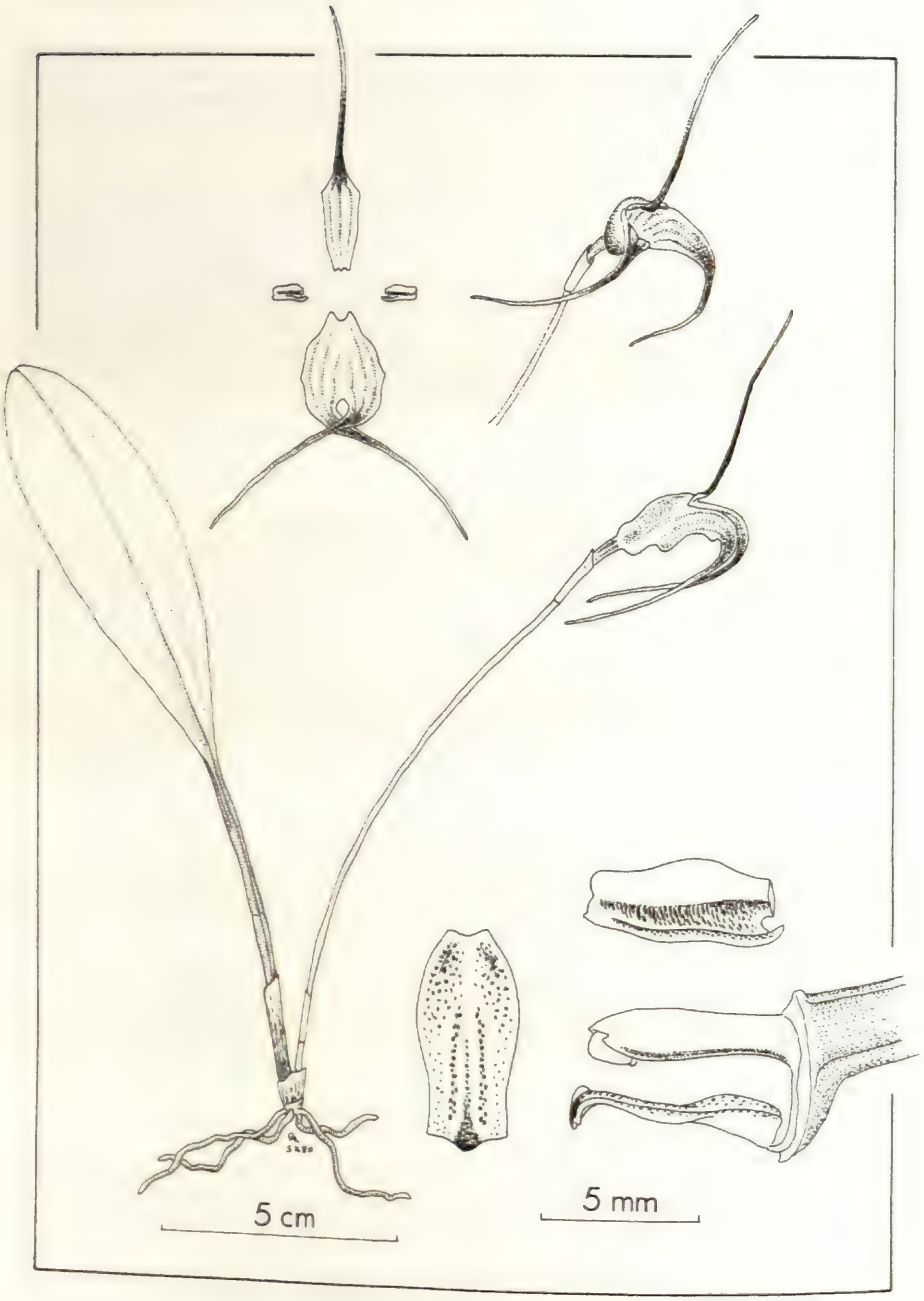


Plate 355. Masdevallia ustulata

This species is relatively frequent and widely distributed in mountainous forests from eastern Colombia through Ecuador into northern Peru at moderately high altitudes between 1500 and 3000 meters above sea level. It was familiar to F.C. Lehmann whose unnamed colored painting, *t. 183*, is at Kew. It was misidentified as the Venezuelan *M. ensata* in *Thesaurus Masdevalliarum*-15.

The color of the solitary flower is usually tan or light brownish with purple or darker brown stripes along the veins. A population with pure yellow flowers (Plate 356) is known from a locality at a high altitude. The slender tails are usually longer than the blades. The sepaline tube has a prominent secondary mentum (the mentum near the middle of the synsepal, separated from the primary mentum with the column-foot by a constriction). The petals have a sharp process above the base. The lip is oblong, truncate at the base, and with a low, central callus at the truncate apex.

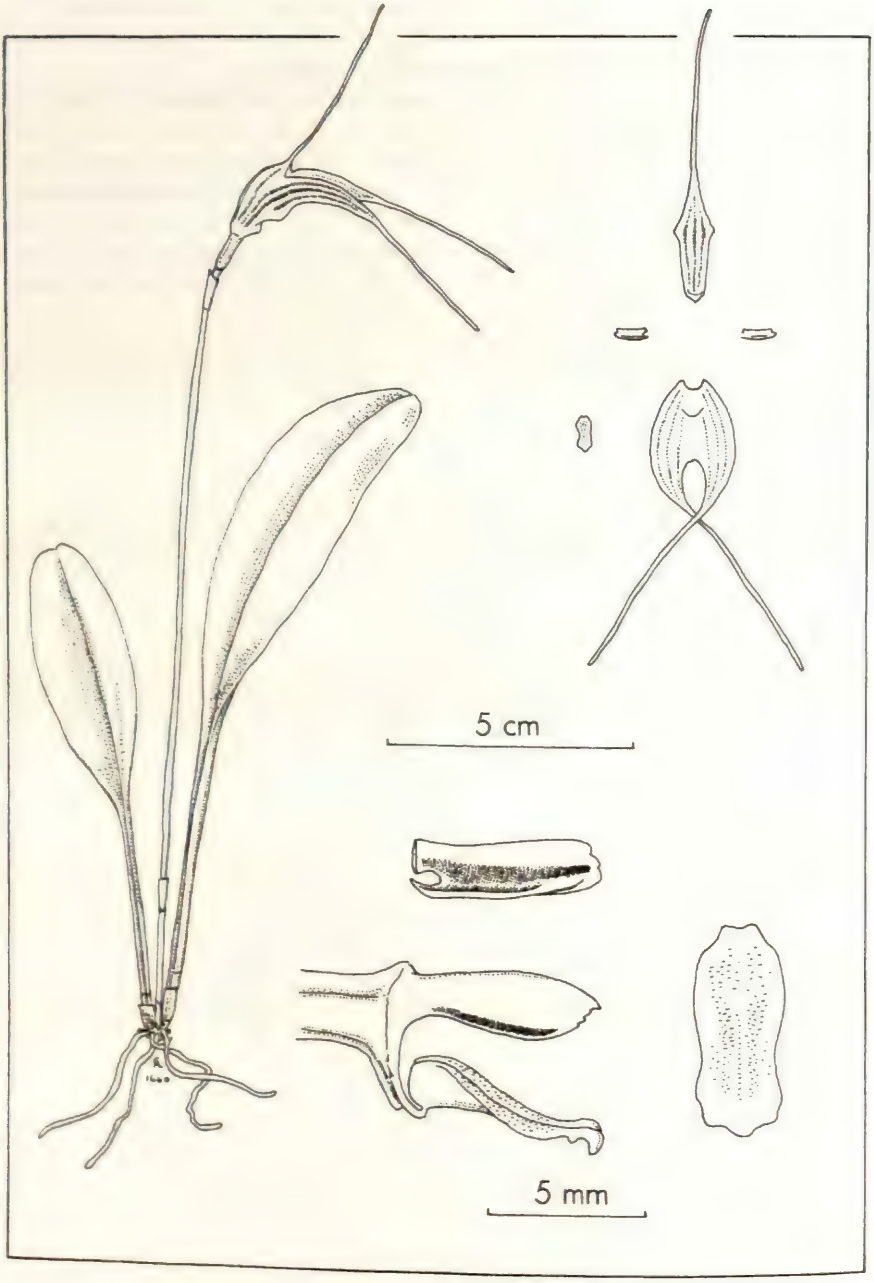


Plate 356. Masdevallia ustulata

Masdevallia vasquezii Luer, Phytologia 46: 352, 1980.

Ety: Named in honor of Roberto Vásquez Ch. of Santa Cruz, Bolivia, who discovered this species.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 0.5-1 cm long, enclosed by 2 thin, tubular sheaths. **Leaf** erect, coriaceous, minutely dotted with black beneath, long-petiolate, 3-3.5 cm long including the petiole 1-1.3 cm long, the blade elliptical, subacute to obtuse, 0.9-1 cm wide, the base cuneate into the blackish petiole. **Inflorescence** a solitary flower, borne by a slender, suberect peduncle 13 mm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 5 mm long; pedicel 6 mm long; ovary purple, 4 mm long; **sepals** translucent rose, veined in dark purple, glabrous, the dorsal sepal obovate, carinate, 10 mm long, 4.5 mm wide, connate to the lateral sepals for 5 mm to form an infundibular, sepaline tube, the apex acute, contracted into a forwardly directed, slender, purple tail 8 mm long, the lateral sepals obovate, oblique, 8 mm long, 5 mm wide, connate 3 mm, forming a mentum with the column-foot, the apices obtuse, contracted into tails 9 mm long, similar to that of the dorsal sepal; **petals** white, marked with purple on the labellar half, oblong, 3.5 mm long, 1.5 mm wide, the apex truncate-tridentate, the labellar margin with a low, longitudinal callus ending in a short, narrowly obtuse, retrorse process at the base; **lip** rose, marked with dark purple, especially in 2 longitudinal stripes, ovate-oblong, arcuate, 5.5 mm long, 2.25 mm wide, the apex acute, the disc sulcate between two longitudinal calli, the base concave with thin, erect margins, hinged on the end; **column** white, semiterete, 3 mm long, the foot 2.5 mm long, with a short, incurved extension.

BOLIVIA: **Cochabamba**: Chapare, epiphytic in forest northeast of Cochabamba toward Villa Tunari, alt. 2900 m, 22 Jan. 1980, *C. Luer, J. Luer & R. Vásquez 4909* (Holotype: SEL); same area, alt. 2550 m, 26 Nov. 1999, *S. Dalström, J. Sönnemark & R. Burian 2414* (MO).

This little species is rare in forests northeast of Cochabamba. In 1980, a single plant was found growing on a small tree by Roberto Vásquez. In spite of intensive searches, no other plant had not been seen again until 1999. It is obviously related to *M. yungasensis* which grows abundantly in the same area along with the less closely allied *M. chaparensis* and *M. nebulina*.

Masdevallia vasquezii is characterized by the very small habit, a purple-striped flower; oblong, tridenticulate petals with a short, retrorse, basal process; and an arcuate lip with an acute apex and concave base.

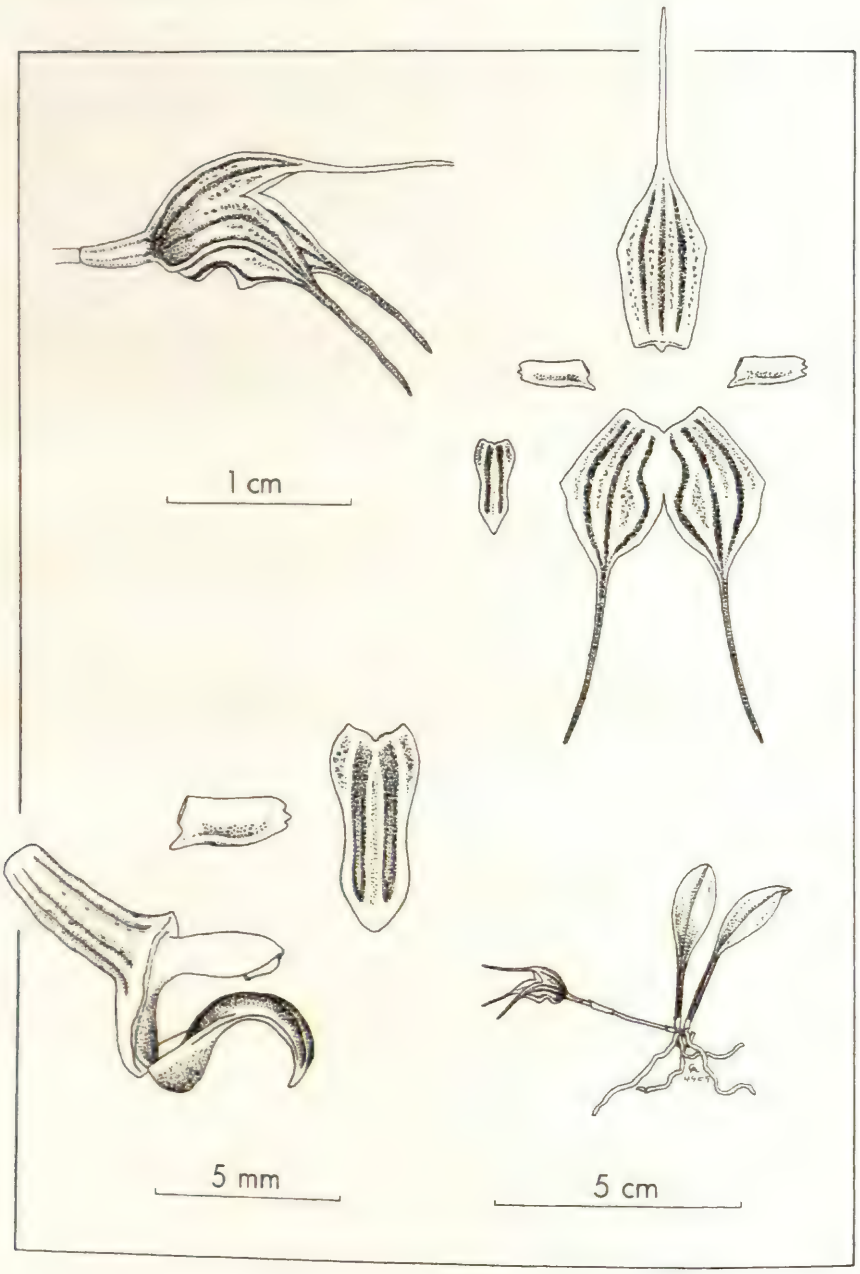


Plate 357. Masdevallia vasquezii

Masdevallia verecunda Luer, Phytologia 42: 469, 1979.

Ety: From the Latin *verecundus*, "bashful," in allusion to the drooping flowers.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1.5-2 cm long, enclosed by 2 loose, tubular sheaths. **Leaf** suberect, coriaceous, 5-8.5 cm long including the petiole 2-3 cm long, the blade elliptical-obovate, obtuse, 1.5-2.2 cm wide, cuneate below into the petiole. **Inflorescence** a solitary, nutant flower, borne by a slender, suberect to nearly horizontal peduncle, 4.5 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 6 mm long; pedicel 6 mm long; ovary 6 mm long; **sepals** greenish white, lightly veined in purple, glabrous, the dorsal sepal obovate, 20 mm long, 11 mm wide, connate to the lateral sepals for 12 mm to form a campanulate, sepaline tube, the apex obtuse, contracted into a forwardly directed, slender, yellow to maroon tail 3 cm long, the lateral sepals oblong, oblique, 15 mm long, 10 mm wide, connate 9 mm, forming a broad, shallow mentum above the base, the apices subacute, contracted into reflexed tails similar to that of the dorsal sepal; **petals** white, oblong, 5.5 mm long, 2 mm wide, the apex truncate-tridentate, the labellar margin with a longitudinal callus ending in a prominent, obtuse, retrorse process above the base; **lip** white, flecked with rose, cuneate-oblong, 6 mm long, 4 mm wide, dilated above the middle into obtuse, oblique, lobe-like wings, with minutely irregular margins, the apex ovate, obtuse, erose, deflexed, with a purple midline callus, the disc sulcate between two low, longitudinal calli, the base subtruncate, hinged beneath; **column** white, suffused with rose, semiterete, 4.5 mm long, the foot 2.5 mm long, with a slender, incurved extension.

VENEZUELA: **Aragua**: near Choroní, received by Don Richardson 2851 from G.C.K. Dunsterville, cultivated by J & L Orchids, Easton, CT, 21 Apr. 1978, *C. Luer 2920* (Holotype: SEL); same collection, cultivated at Colomborquídeas, 17 Apr. 1988, *C. Luer 13216* (MO). Without collection data, Jan. 1969, Apr. 1976, *G.C.K. Dunsterville 1116*.

This species is apparently endemic in coastal Venezuela. Dunsterville illustrated it in 1969, ten years before its formal description. It seems allied to *M. triangularis* of subsection *Caudatae* with which it is sympatric, but the campanulate sepaline tube brings it into subsection *Masdevallia*.

Masdevallia verecunda is distinguished by the light greenish sepals deeply connate into a drooping, bell-shaped flower that faces more or less downward on suberect to subhorizontal peduncles. The apex of the lip is trilobed with the apical lobe deflexed, similar to the deflexed apical lobe of *M. triangularis*.

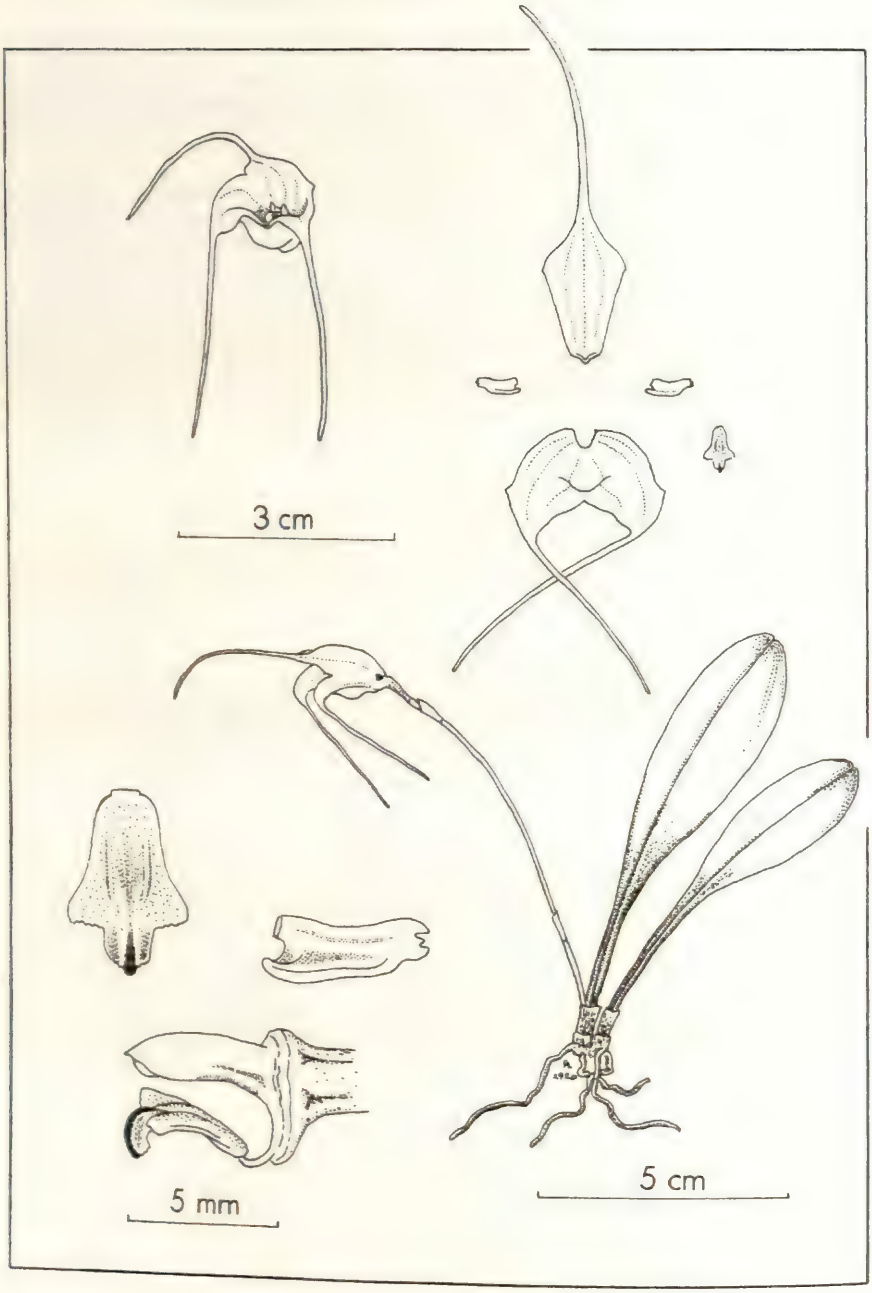


Plate 358. Masdevallia verecunda

Masdevallia yungasensis Hashimoto, Bull. Natl. Sci. Mus., Ser. B, 4: 7, 1978.

Ety.: Named for the Bolivian provinces of the Yungas where the species was discovered.

Syn.: *Masdevallia calocodon* Luer & Vásquez, Selbyana 5: 391, 1981.

Ety.: From the Greek *calocodon*, "a beautiful bell," referring to the appearance of the flower.

Syn.: *Masdevallia yungasensis* subsp. *calocodon* (Luer & Vásquez) Luer, Lindleyana 3: 70, 1988.

Plant small to medium in size, epiphytic to terrestrial, caespitose to shortly ascending; roots coarse. Ramicauls erect, slender, 1-6 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 5-12 cm long including the petiole 1.5-6 cm long, the blade elliptical, subacute to obtuse, 1.4-2.8 cm wide, cuneate below into the slender petiole. **Inflorescence** a single, showy flower borne by a slender erect to suberect peduncle 4-6.5 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 8-12 mm long; pedicel 15-24 mm long; ovary 4-7 mm long; **sepals** white or rose with purple veins, to yellow with brown veins, glabrous, the dorsal sepal obovate, 12-16 mm long, 12-15 mm wide, connate to the lateral sepals for 9-10 mm to form a gaping, subglobose, sepaline tube, the free portion transversely triangular, with the obtuse apex abruptly contracted into a slender, yellow or green tail 35-40 mm long, the lateral sepals broadly ovate to broadly obovate, 20-22 mm long, 14-17 mm wide, connate 9-10 mm to form a broad, bifid lamina, the base forming a deep mentum with the column-foot, often dilated above to form a secondary mentum, the obtuse apices contracted into slender tails similar to that of the dorsal sepal; **petals** white, often with a purple midvein, oblong, 8.5-9 mm long, 2.75-3 mm wide, the apex acute, obscurely toothed, with the lower tooth longer, the labellar margin with a longitudinal callus ending in a triangular, retrorse process above the base; **lip** light orange or yellow, lightly flecked with purple, subovate, strongly arcuate, 6 mm long unexpanded, 8 mm long expanded, 6-6.5 mm wide, the obtuse apex acutely recurved, with a low, midline, marginal callus, the disc with a low pair of longitudinal calli on the middle third, the base broadly subtruncate, often shallowly cleft, hinged beneath; **column** ivory, flecked purple, semiterete, 6 mm long, the foot 7 mm long with a long, incurved extension.

BOLIVIA: **La Paz**: Sud Yungas: 7 km from Sacramento Alto to Unduavi, 23 Dec. 1974, *Fukimo Maeda for Nishida, Ono, Hashimoto & Ohga 01182* (Holotype: TNS); "La Paz," *Davis s.n.* (W); Yungas, alt. 6,000 ft., 1885, *H.H. Rusby 2805* (NY); Unduavi, alt. 8,000 ft., Oct. 1885, *H.H. Rusby 2736* (AMES); above Unduavi, alt. 2950 m, 29 Jan. 1980, flowers white with purple stripes, *C. Luer, J. Luer, R. Vásquez & R. Lara 5005* (SEL); above Río Unduavi, alt. 2800 m, 4 Feb. 1980, flowers yellow with brown stripes, *C. Luer, J. Luer, R. Vásquez & R. Lara 5127* (SEL); Nor Yungas, between Unduavi and Caranavi, alt. 2000 m, 27 Nov. 1980, *T.B. Croat 51552* (MO); east of Cotapata, alt. 3250 m, 11 Nov. 1987, *J.C. Solomon 17318* (MO); Murillo, along Río Zongo, alt. 3000 m, 9 Oct. 1982, *J.C. Solomon 8416* (MO); Río Zongo, alt. 2900 m, 22 Nov. 1992, *C. Luer, J. Luer, R. Vásquez, D. Ric & W. Teague 16468* (MO). **Santa Cruz**: near Siberia, Dec. 1960, *M. Cárdenas 5847* (US); between Pojo and Siberia, alt. 2300 m, 10 Jan. 1965, *S. Vogel 460* (WU); Carrasco, forest near Siberia, alt. 2500 m, 2 Dec. 1978, *C. Luer, F. Fuchs et al. 3529* (holotype of *P. calocodon*: SEL; clonotype: K); same area, collected by Janet Kuhn et al., Mar. 1975, cultivated at J & L Orchids, Easton, CT, 21 Apr. 1978, *C. Luer 2921* (SEL); near Siberia above Comarapa, alt. 2500 m, 1-2 Dec. 1978, *C. Luer, J. Luer, F. Fuchs et al. 3592* (AMES, MO, SEL); same area, alt. 2000 m, 14 Jan. 1990, *L.J. Don & L.C. Barnett 7054* (NY); Cumbre de San Mateo-Vallegrande, alt. 2700 m, Nov. 1941, *M. Cárdenas 3999* (AMES). **Cochabamba**: between Cochabamba and Villa Tunari, alt. 2600 m, 26 Nov. 1978, *C. Luer, F. Fuchs et al. 3501, 3508* (SEL); terrestrial in humus, northeast of Cochabamba toward Villa Tunari, alt. 2800 m, 14 Nov. 1992, *C. Luer, J. Luer, R. Vásquez, D. Ric & W. Teague 16411* (MO); Sehuencas, moist forest, alt. 2630 m, 13 Jan. 1988, *C. Luer, J. Luer, R. Vásquez et al. 12805* (MO).

This showy species is locally abundant in the Yungas on the northern declivity of the Andes north and east of La Paz. Among the nineteenth century collectors in Bolivia, such as Bang, Bridges, Buchtien, Mandon, and Rusby, apparently only

Plate 359. Masdevallia yungasensis

Rusby had made a collection of this species in 1885. It was collected in 1974 by Japanese botanists and described in 1978.

In habit, this species is similar to the majority of medium-sized species of the section: elliptical long-petiolate leaves, and a single-flowered peduncle about half as long. The flowers are variable in size, shape and color. A population of small plants with small, pale-colored flowers is known.

The color of the glabrous, sepaline tube with tails significantly longer than the blades varies from white or rose with purple stripes along the veins, to yellow with brown stripes. A pure yellow color-form has been seen. The sepals within are variously short-pubescent. They are usually connate into a "funnel-shaped" flower with a distinct mentum with the column-foot. A variation from the eastern portion of the distribution with gaping, "bell-shaped" flowers with a red pubescence was described as *M. calocodon*.

The petals possess a retrorse process at the base. The lip is oblong-subpandurate, and often markedly arcuate with a very broad, truncate, non-cleft base, and with a recurved, obtuse apex.

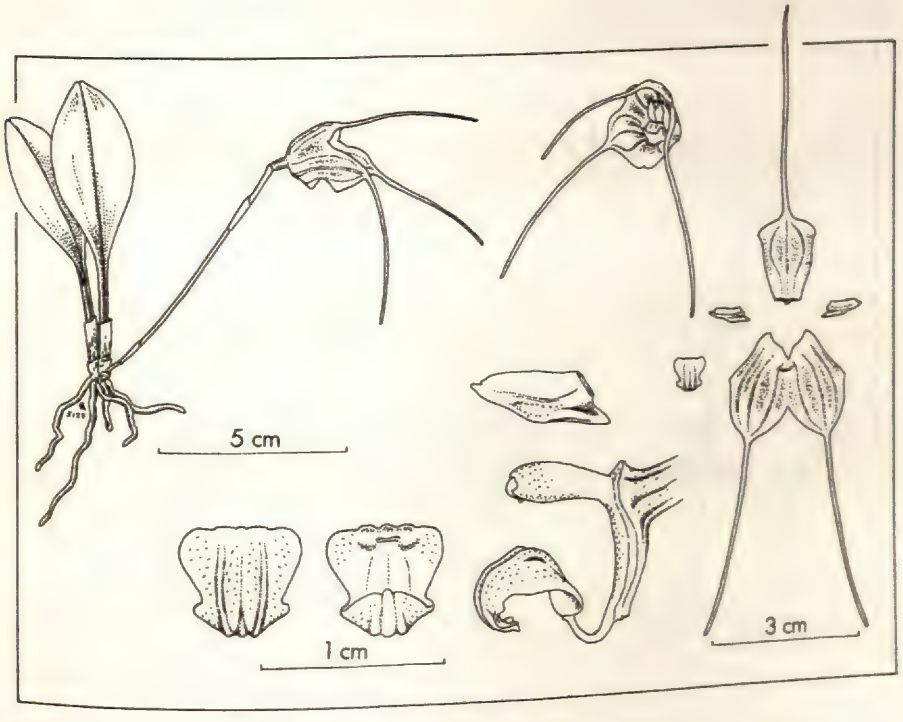


Plate 359a. Masdevallia yungasensis

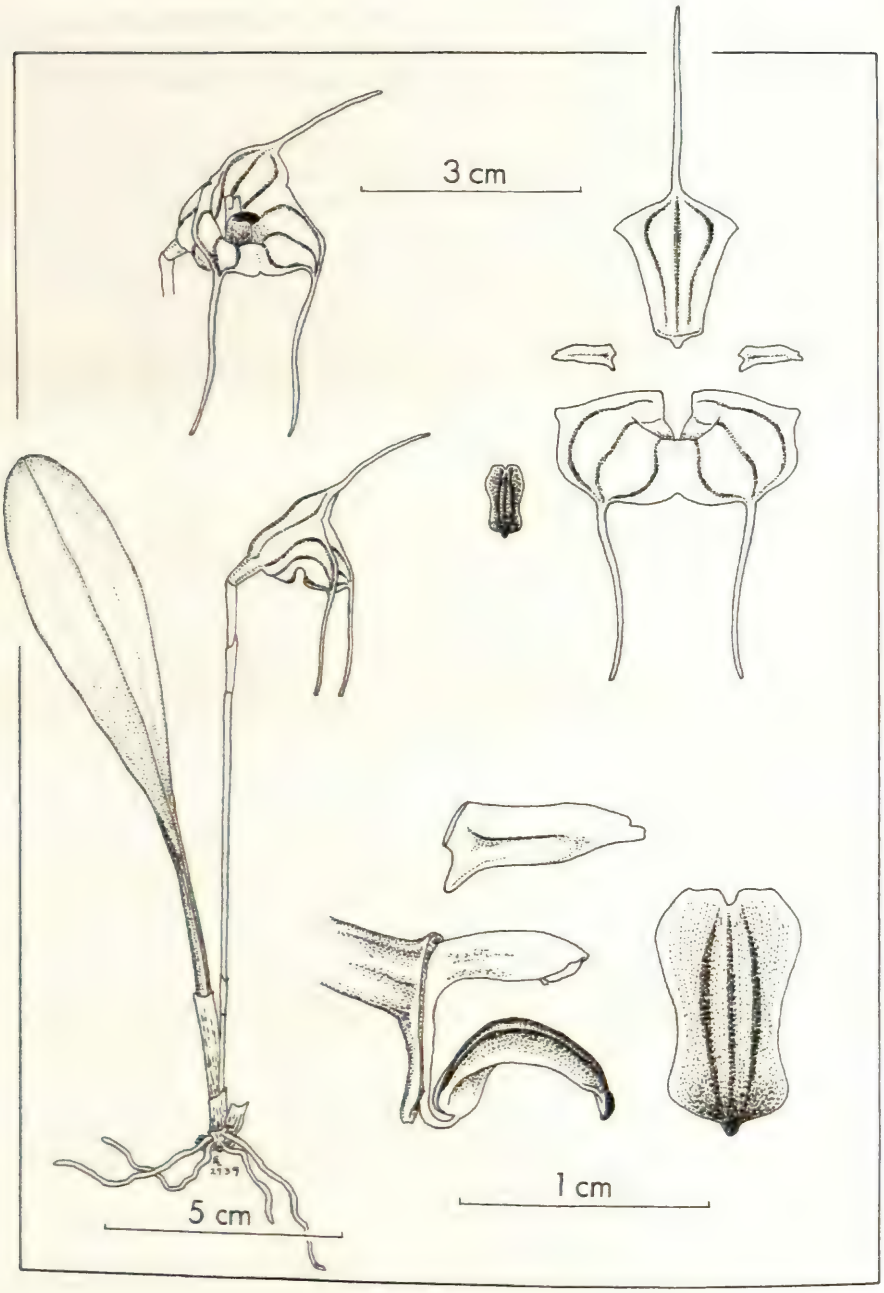


Plate 360. Masdevallia yungasensis

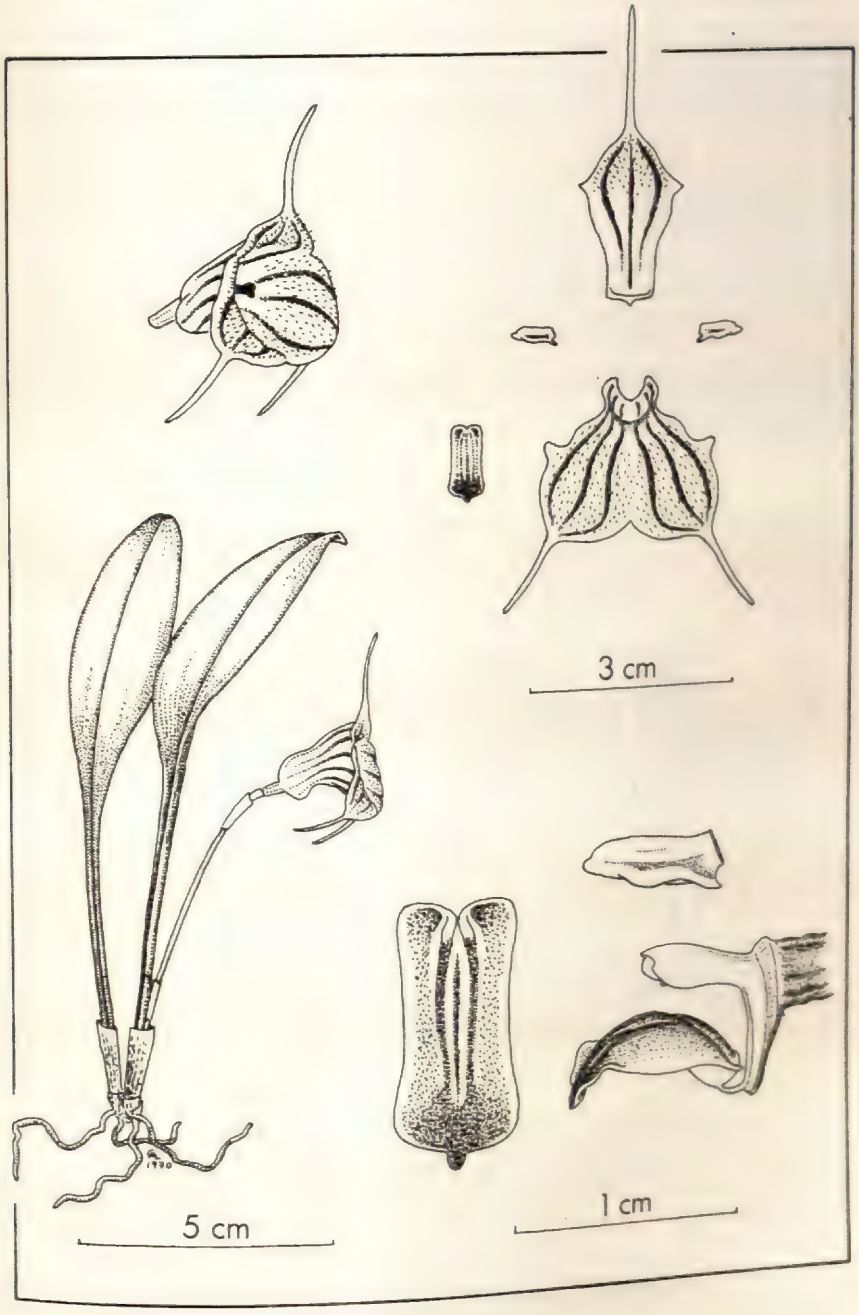


Plate 361. Masdevallia yungasensis
(*subsp.* calocodon)

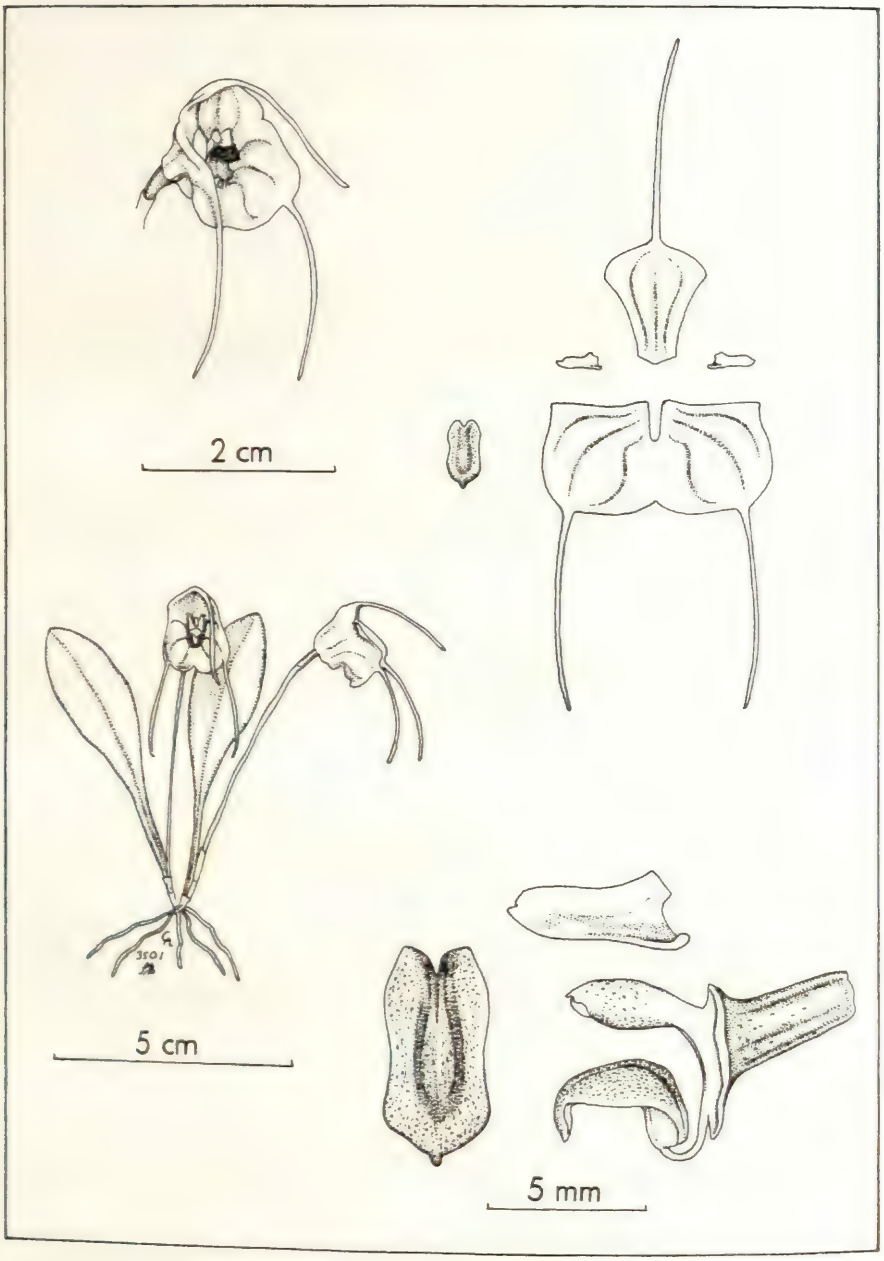


Plate 362. Masdevallia yungasensis

Masdevallia zebracea Luer, Lindleyana 4: 126, 1989.

Ety.: From the Latin *zebraceus*, "like a zebra," in allusion to the white, darkly striped sepals.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 4-5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 6-8.5 cm long including the petiole 1.5-2.5 cm long, the blade elliptical, subacute, 1.5-1.9 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 9-11 cm long, with a bract above the base, from near the middle of a ramicaul; floral bract tubular, 8 mm long; pedicel 8 mm long; ovary 5 mm long; **sepals** white with dark purple stripes, densely short-pubescent internally, the dorsal sepal oblong-obovate, 13 mm long, 6 mm wide, connate to the lateral sepals for 7 mm to form a cylindrical sepaline tube, the apex subacute, contracted into a thick, terete, bright yellow tail 20 mm long, the lateral sepals ovate, oblique, 15 mm long, 6 mm wide, connate 5 mm, the free portions acute, gradually contracted into thick, terete tails 15 mm long; **petals** white, cartilaginous, oblong, 6 mm long, 2.25 mm wide, the apex obtuse, bilobulate, the labellar margin with a longitudinal callus ending in a short, acute, retrorse process above the base; **lip** oblong, 6 mm long, 2.75 mm wide, the apex broadly rounded without a callus, the disc with a low, broad, longitudinal pair of calli, the base subcordate, shallowly notched, hinged beneath; **column** white, semiterete, 5.5 mm long, the foot 2 mm long, with a short, incurved extension.

PERU: Without locality (probably **Amazonas**): obtained from M. Arias who had obtained the plant from J. Meza, cultivated at J & L Orchids, 689-328, Easton, CT, June 1989, *C. Luer 14387* (Holotype: MO); same collection, cultivated at Colomborquídeas, 16 May, 1993, *C. Luer 16882* (MO); also obtained from J. Meza, cultivated by Maduro's Tropical Orchids, Cerro Punta, Panamá, 16 Nov. 1998, *C. Luer 18994a* (MO).

The solitary-flowered peduncle of this species is produced near the mid-portion of an elongated ramicaul. The white flower with dark purple stripes resembles that of the Ecuadorian *M. corderoana*, except that the former is considerably smaller. (The flowers produced by *M. corderoana* in cultivation are smaller than those found in the wild.) The tails of the sepals of *M. zebracea* are shorter, thick, terete and bright yellow; the sepals are densely short-pubescent within; and the apex of the oblong lip is broadly rounded without a callus so often seen in the species of subsection *Masdevallia*.

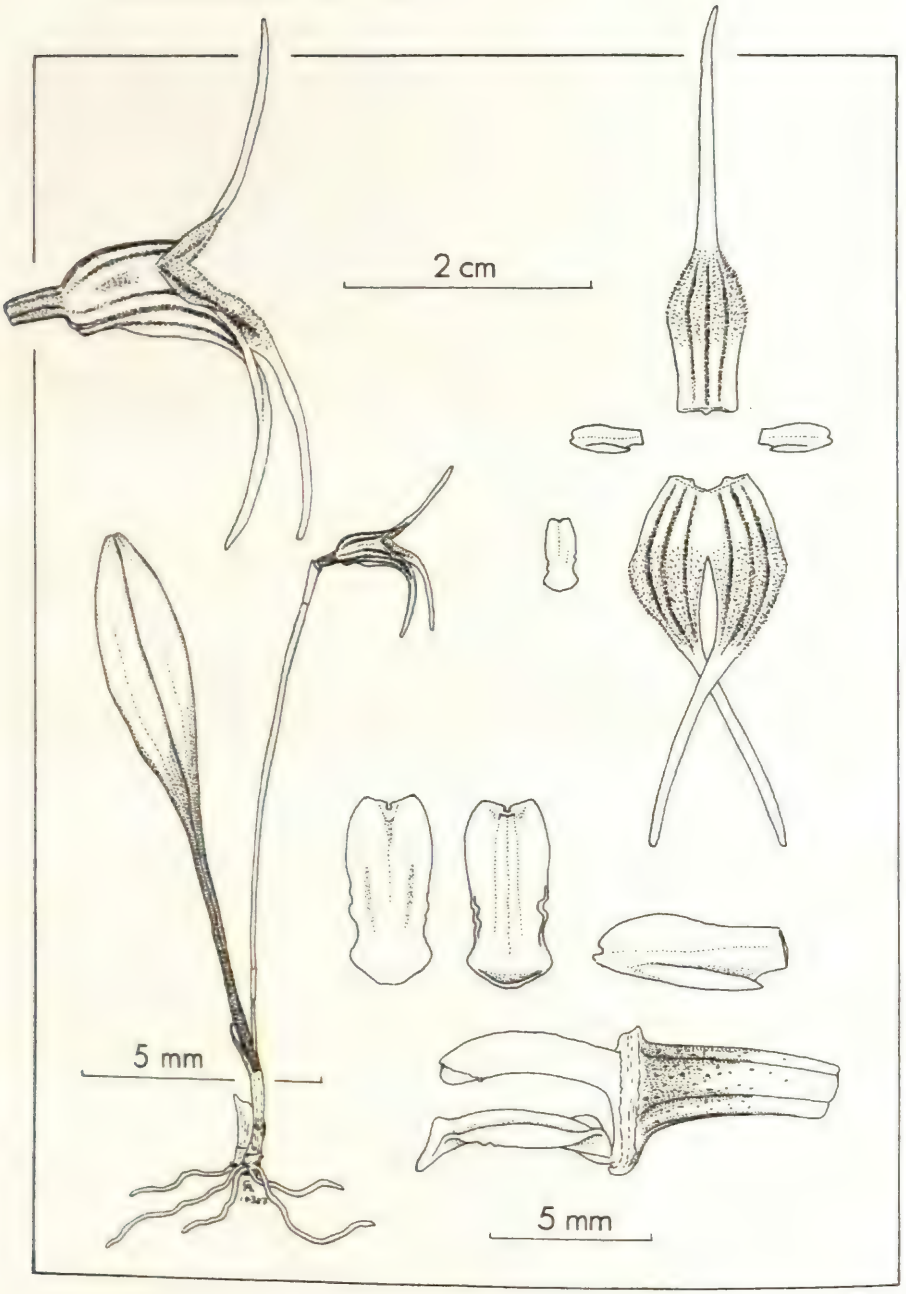


Plate 363. Masdevallia zebracea

MASDEVALLIA SECTION MINUTAE

Masdevallia subgenus **Masdevallia** section **Minutae** Rchb.f. ex Woolward, The Genus *Masdevallia* sect. VI, 1896.

Type: *Masdevallia minuta* Lindl., Ann. Mag. Nat. Hist. 12: 396, 1842.
Ety.: From the Latin *minutus*, "minute," referring to the small size of the flowers and habit.

Syn.: *Masdevallia* sect. *Floribundae* Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 84, 1925.
Type: *Masdevallia floribunda* Lindl., Edwards' Bot. Reg. 29: Misc. 72, 1843.
Ety.: From the Latin *floribundus*, "free-flowering," referring to the floriferous habit of the plant.

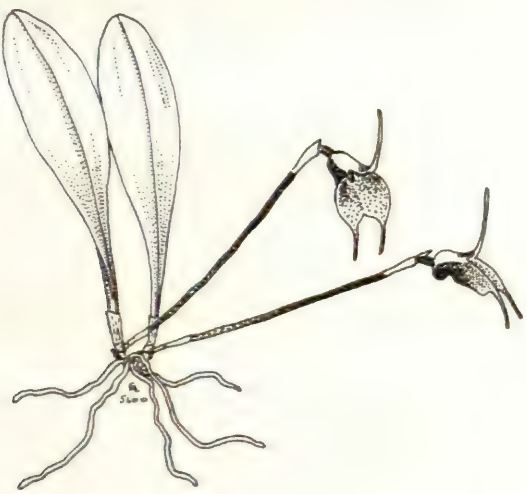
Reichenbach simply indicated the subgeneric category *Minutae* for *Masdevallia minuta*. In her Monograph of the Genus *Masdevallia* in 1896, Florence Woolward proposed section *Minutae*, "a somewhat miscellaneous section containing small species which cannot correctly be classed in any other group." She included twelve species, seven of which are now dispersed into other sections. Twenty species from Mexico to Bolivia with morphological characters that relate them to *M. minuta* now constitute the section. Most species are found in Central America where the section merges with section *Reichenbachianae*. *Masdevallia lankesteriana*, *M. mejiana*, and even *M. striatella* have intermediate characters.

Vegetatively, the section is characterized by a caespitose habit that is not distinct from many other small species of the genus. The peduncles are terete, and usually more than one flower is produced successively, although two flowers are produced simultaneously in two species. The petals are distinguished by a protrusion from a callus between the middle and lower thirds above or along the labellar margin. The lip is more or less oblong with a longitudinal pair of more or less converging calli on or above the middle third of the disc. In some species (e.g., *M. floribunda*), the calli approach those of subgenus *Polyantha*.

BINOMIALS PUBLISHED IN *MASDEVALLIA* ATTRIBUTABLE TO SECTION *MINUTAE*

M. adamsii Luer ..... Plate 364.
M. arangoi Luer & Escobar ..... Plate 365.
M. attenuata Rchb.f. ..... Plates 366, 367, 368.
M. burzlaffiana Königer = **M. floribunda**
M. chontalensis Rchb.f. ..... Plates 369, 370.
M. crescenticola Lehm. & Kraenzl. ..... Plate 371.
M. diantha Schltr. = **M. chontalensis**
M. ecaudata Schltr. = **M. tubuliflora**
M. flaveola Rchb.f. ..... Plate 372.
M. floribunda Lindl. ..... Plates 373, 374, 375, 376.
M. floribunda ssp. *tuerckheimii* (Ames) Luer = **M. floribunda**
M. fonsecae Königer = **M. attenuata**
M. frontinoënsis Kraenzl. = **M. herradurae**
M. galeottiana A.Rich. & Galeotti = **M. floribunda**
M. geminiflora P.Ortiz ..... Plate 377.

M. gutierrezii Luer .....Plate 378.
M. herradurae Lehm. & Kraenzl. .....Plate 379.
M. laucheana Kraenzl. .....Plate 380.
M. lindeniana A.Rich. & Galeotti = **M. floribunda**
M. livingstoneana Rchb.f. & Roezl .....Plate 381.
M. livingstoneana Schltr. sensu Ames = **M. livingstoneana**
M. minuta Lindl. .....Plates 382, 383.
M. myriostigma Morren = **M. floribunda**
M. nicaraguae Luer .....Plate 384.
M. panamensis (Schltr.) Ames = **M. livingstoneana**
M. pescadoënsis Luer & Escobar.....Plate 385.
M. rodrigueziana Mansf. = **M. wendlandiana**
M. scabrilinguis Luer .....Plate 386.
M. surinamensis Focke = **M. minuta**
M. tenuipes Schltr. = **M. herradurae**
M. tokachiorum Luer .....Plate 387.
M. tonduzii Woolward .....Plate 388.
M. tubuliflora Ames.....Plate 389.
M. tuerckheimii Ames = **M. floribunda**
M. ulei Schltr. = **M. wendlandiana**
M. wendlandiana Rchb.f. .....Plate 390.
M. yauaperyensis Barb.Rodr. = **M. wendlandiana**



KEY TO THE SPECIES

1 Peduncle horizontal to descending; lateral sepals rounded at the apex with minute tail ..... *M. crescenticola*
1' Peduncle erect or suberect; lateral sepals acute, with or without tails 2

2 Inflorescence simultaneously 2-flowered 3
2' Inflorescence 1-flowered, usually followed by a second flower 4

3 Sepals less than 20 mm long including the tail; flowers white ..... *M. chontalensis*
3' Sepals more than 23 mm long including the tail; flowers mottled with brown ..... *M. geminiflora*

4 Sepaline tails thicker above the middle, more or less clavate ..... *M. flaveola*
4' Sepaline tails not thicker above the middle 5

5 Sepals broad, with the laterals more or less broadly triangular, tailless 6
5 Sepals with tails 8

6 Lateral sepals with the apices diverging; flower snow white ..... *M. nicaraguae*
6' Lateral sepals subfalcate, more or less incurved 7

7 Flower with large purple spots; dorsal sepal reflexed ..... *M. livingstoneana*
7' Flower white or suffused with pale red or brown; dorsal sepal forward ..... *M. tubuliflora*

8 Sepals yellow, heavily suffused with purplish brown ..... *M. arangoi*
8 Sepals not heavily suffused with purplish brown 9

9 Sepaline tails thick, broadly linear, or narrowly triangular 10
9' Sepaline tails slender 12

10 Sepals suffused or striped with purple, with the tails longer than the blade ..... *M. wendlandiana*
10' Sepals white to greenish or yellowish white, with the tails about as long as the blade 11

11 Petals with an acute process between the middle and basal thirds; lip without a callus beneath the tip ..... *M. minuta*
11' Petals without an acute process between the middle and basal thirds; lip with a callus beneath the tip ..... *M. adamsii*

12 Lateral sepals free beyond the column-foot ..... *M. tokachiorum*
12 Lateral sepals connate at least the length of the tube 13

13 Lateral sepals free at the orifice of the tube.....14
13' Lateral sepals connate beyond the sepaline tube.....16

14 Peduncle longer than the leaf; flower snow white.....*M. gutierrezii*
14' Peduncle shorter than the leaf 15

15 Peduncles usually produced in profusion, less than 3 cm long; flowers purple or yellow ..... *M. herradurae*
15' Peduncles produced singly, more than 4 cm long; flowers mottled with light brown ..... *M. pescadoënsis*

16 Tail of the dorsal sepal longer than the tails of the lateral sepals.....*M. floribunda*
16' Sepaline tails equally long 17

17 Sepaline tube conical, dilated with a secondary mentum.....18
17' Sepaline tube cylindrical, without a secondary mentum.....19

18 Lip with a pair of longitudinal calli medially, and a callus at the tip.....
..... *M. laucheana*
18' Lip without calli ..... *M. tonduzii*

19 Sepals white with 3 purple stripes; lip with an apical callus.....*M. attenuata*
19' Sepals white; lip verrucose-denticulate above the middle.....*M. scabrilinguis*

Masdevallia adamsii Luer, Lindleyana 9: 243, 1994.

Ety.: Named in honor of B.R. Adams, of Ipswich, England, who discovered this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 7-9 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, narrowly obovate, subacute, 25-45 mm long, 5-6 mm wide, gradually narrowed below to the narrow, indistinctly petiolate base. **Inflorescence** a solitary flower borne by a slender, erect peduncle 2-2.5 cm long, with a bract above the base, from low on the ramicaul; floral bract 4-5 mm long; pedicel 6-7 mm long; ovary 3 mm long; **sepals** white, glabrous, the dorsal sepal oblong, 11 mm long, 2 mm wide, connate to the lateral sepals for 5 mm to form a cylindrical tube, the free portion broad, narrowed into a thickened, terete tail 5 mm long, pale green at the apex, the lateral sepals connate 5 mm into an oblong, bifid synsepal, 11 mm long, 5 mm wide expanded, the apices broad, narrowed into thick, terete tails 4 mm long; **petals** white, oblong, 3.25 mm long, 1 mm wide, the apex minutely apiculate-tridentate, the labellar half with a low, longitudinal callus within the margin of the middle third; **lip** light yellow, oblong, subpandurate, 3.5 mm long, 1 mm wide, the disc with a pair of low, longitudinal calli above the middle, concave between, with the shallow concavity extending onto the apex; the apex obtuse, minutely denticulate-erose, thickened beneath with a broad, low, conical callus, the base subcordate, hinged on the end to the column-foot; **column** greenish white, semiterete, 2.5 mm long, the foot 1 mm long, with a short, incurved extension.

BELIZE: Cayo district, below summit of Baldy Beacon, Mountain-pine Ridge, epiphytic in moist, evergreen forest, alt. 1000 m, 22 Apr. 1979, cultivated 31 Jan. 1980, *B.R. Adams 226* (Holotype: K), C. Luer illustr. 17235.

In appearance, this small species is indistinguishable from *M. minuta* which is widely distributed in South America at relatively low altitudes from the Guyanas and along the Amazonian slopes of the Andes from Venezuela into Bolivia. No locality is known from north or west of the Andes.

Similar to *M. minuta*, the small, white flowers of *M. adamsii* are produced singly among narrow leaves. The sepals are connate nearly half their lengths into a narrow, cylindrical tube, with the free portions contracted into thickened, terete, slightly recurving tails. The petals also are similar to those of *M. minuta*, but the distinctive, pointed callus between the middle and lower thirds is absent. A low, longitudinal callus courses along the margin of the middle third. The lip is also similar to the lip of *M. minuta*, but the apex is thickened, shallowly concave above and callous beneath with a broad, conical callus similar to that seen in *M. attenuata*. The margins of the apex are erose.

The occurrence of a disjunct population of a species far removed from its known distribution is infrequent, but not rare. In this instance, the distant isolation of a population would be extreme. Coupled with at least two differing morphological features (the absent, pointed callus of the petal, and the conical callus beneath the apex of the lip), the population found in Belize is recognized here as specifically distinct. Were the habit not so similar to that of *M. minuta*, it could conceivably be treated in section *Coriaceae*.

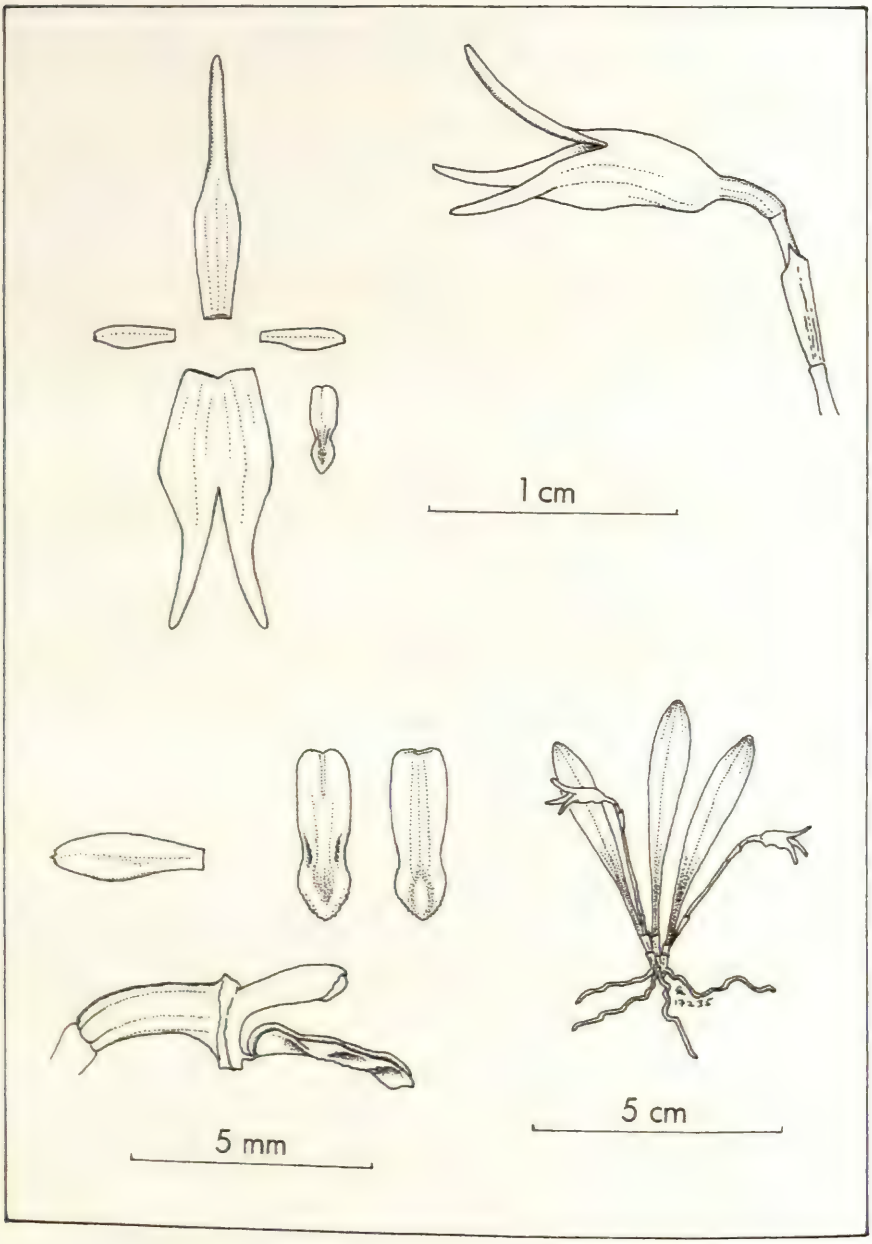


Plate 364. Masdevallia adamsii

Masdevallia arangoi Luer & Escobar, Orquideología 13: 149, 1979.

Ety.: Named in honor of Dr. Octavio J. Arango of Medellín, Colombia, an ardent *Masdevallia*-enthusiast who has successfully cultivated this species since its discovery.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, blackish, 1.5-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 7-10.5 cm long including the petiole 1.5-3 cm long, the blade elliptical, obtuse, 1.8-2.3 cm wide, narrowly cuneate below into the channeled petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 6-8.5 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 8-10 mm long; pedicel 11-12 mm long; ovary 6-7 mm long, minutely pitted; **sepals** fleshy, yellow below the middle, suffused with purple-brown above the middle, the dorsal sepal obovate, 15 mm long, 7 mm wide, connate to the lateral sepals for 10 mm to form a cylindrical, sepaline tube, the subacute, triangular free portion contracted into a thick, orange-brown, forwardly directed tail 20-22 mm long, the lateral sepals obovate, 15 mm long, 7.5 mm wide, connate 11 mm to form a lamina with a shallow, secondary mentum, the subacute apices contracted into thick, decurved, orange tails 15-17 mm long, contracted at the base to form a short mentum with the column-foot; **petals** white with a few purple dots at the subtruncate apex, elliptical-oblong, 4.5 mm long, 1.8 mm wide, with a low, longitudinal callus above the labellar margin ending in a small, acute tooth between the middle and lower thirds; **lip** dull white, diffusely dotted with red, oblong, 5.5 mm long, 2 mm wide, the apex obtuse, denticulate, verrucose, the disc with a pair of longitudinal calli above the middle, the base subcordate, hinged beneath; **column** red-purple, semiterete, 5 mm long, the foot 2 mm long with an incurved extension.

COLOMBIA: **Antioquia**: Dabeiba, "El Ciguero," Serrania de Urama, alt. 1800-2000 m, 5 Jan. 1975, collected by L. Agudelo, cultivated by M. & O. Robledo at La Ceja, 6 Dec. 1975, *R. Escobar 1391* (Holotype: JAUM); same collection, cultivated 29 Sept. 1977, *C. Luer 1864* (SEL); Alto de Aguila, Serrania de Urama, alt. 1700-2000 m, 20 Sept. 1974, *L. Agudela s.n.* (JAUM); Dabeiba, Choromando, collected by H. Angarito Aug. 1985, cultivated by M. & O. Robledo at La Ceja, 19 Mar. 1989, *C. Luer 14287* (MO).

This species is apparently endemic in a small area of the northern part of the Western Cordillera of Colombia. It was first discovered in 1974, and it has been collected in the same area on only a very few subsequent occasions.

Masdevallia arangoi is unusual in the section and without close relatives, standing somewhere between two large, easily recognized groups (sect. *Minutae* and sect. *Coriaceae*). However, it seems more closely allied to the species related to *M. minuta*, because of the labellar callus ending in a small, acute tooth above the margin in the lower third. The broad sepaline tube of the solitary flower and the verrucose apex of the lip resemble those of the malodorous flowers of the species related to *M. coriacea*.

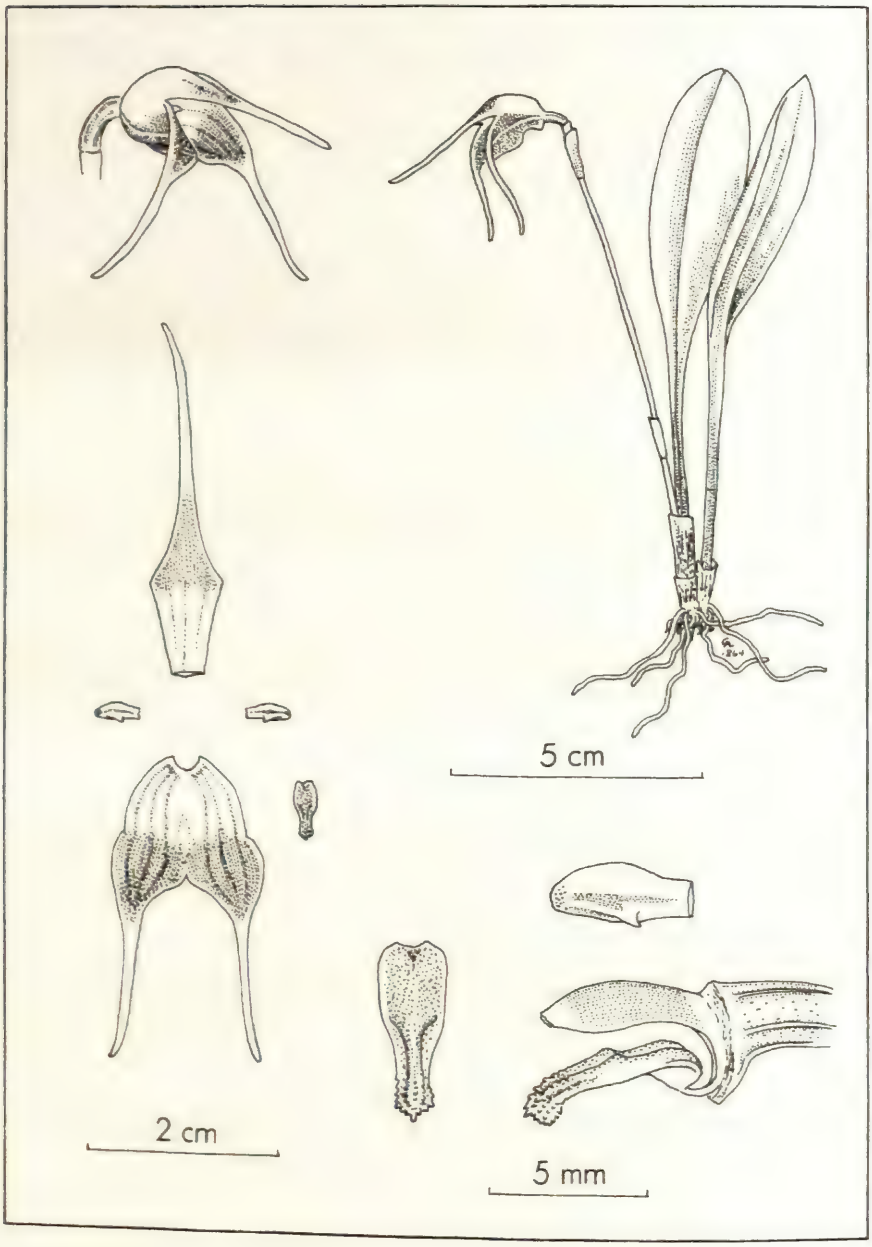


Plate 365. Masdevallia arangoi

Masdevallia attenuata Rchb.f., Gard. Chron. 834, 1871.

Ety.: From the Latin *attenuatus*, "attenuate," referring to the leaves.

Syn.: *Masdevallia fonsecae* Königer, Arcula 2: 35, 1994.

Ety.: Named for Walter Fonseca of San José, Costa Rica, who collected this species.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1.5-2.5 cm long, enclosed by 2-3 thin, close, tubular sheaths. **Leaf** erect to suberect, coriaceous, narrowly obovate, subacute to obtuse, 8-15 cm long including an indistinct petiole 2-5 cm long, 1.4-2.3 cm wide, gradually narrowed (attenuate) below into the subpetiolate base. **Inflorescence** a single flower, often followed by a second flower, borne by a slender, erect to suberect peduncle, 5-8 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 6-10 mm long; pedicel 13-20 mm long; ovary 4-5 mm long; **sepals** white to pale green, usually striped with purple along the 3 veins, and with a small, purple spot at the base, microscopically pubescent within, the dorsal sepal obovate, 12-14 mm long, 6 mm wide, connate to the lateral sepals for 7-8 mm into a cylindrical tube, the free portion triangular, the apex acute, contracted into an erect, slender, yellow or orange tail 15-22 mm long, the lateral sepals obovate, oblique, connate 8-12 mm to form a lamina 13-16 mm long, 13-15 mm wide expanded, the obtuse apices contracted into tails similar to but slightly shorter than that of the dorsal sepal; **petals** white, ovate, unguiculate, 4.5-5.5 mm long, 2-2.5 mm wide, the apex acute, the labellar margin with a low, longitudinal callus ending in a short, pointed tooth between the middle and lower thirds above the claw; **lip** white, brown at the apex, oblong, slightly subpandurate, 5.5-6 mm long, 2-2.25 mm wide, the apex subacute with microscopically erose margins, with a verrucose callus inside the margin, protuberant beneath, the disc shallowly sulcate between a longitudinal pair of oblique calli obtusely angled near the middle, the base subtruncate, hinged beneath; **column** white with purple margins, semiterete, 4-5 mm long, the foot 1.5 mm long with an incurved extension.

COSTA RICA: without collection data, introduced in 1871 by Messrs. Veitch, cultivated by *Veitch 192* (Holotype: W; Isotype: K); cultivated by *Veitch 71* (W); without locality, ca. 1867, *A. Endres 285* (W); without locality, collected by L. Glicenstein, cultivated by P. & A. Jesup in Bristol, CT, 18 Nov. 1977, *C. Luer 2223* (SEL). **San José**: El General, alt. 825 m, Jan. 1936, *A.F. Skutch 2445* (AMES, K, MO, S). **Cartago**: Paraíso, Río Macho, alt. 2760 m, 6 July 1996, *B. Gamboa & A. Picado 439* (INB, MO). **Puntarenas**: Peninsula de Osa, alt. 100 m, 31 Mar. 1991, *B. Hammel & R. Aguilar 18182* (MO); north of San Vito, alt. 900-1000 m, cultivated by *W. Königer WK-34* (holotype of *M. fonsecae*: M; isotypes: K, US). Without locality, *Zahn 125* (W).
PANAMA: **Chiriquí**: Nov. 1880, *R. Pfau 69* (W); Cerro Horconcito, alt. 4,500 ft., *C.W. Powell 268* (AMES, MO); Río Caldera below Boquete, alt. ca. 500, Sept. 1976, cultivated Nov. 1977, *C. Luer & H. Butcher 2242* (SEL).
ECUADOR: **Tungurahua**: Cerro Los Llanganates, Leito to Triunfo, alt. 2400 m, collected by Hirtz et al., cultivated in Quito, Nov. 1991. *A. Hirtz 5607* (MO), C. Luer illustr. 16199.

This species was imported by Messrs. Veitch from Costa Rica and submitted to Reichenbach. No details of its collection are known. The type-specimen of *M. attenuata* in the Reichenbach herbarium has been erroneously annotated by Kränzlin as *M. guayanensis* Lindl. *Masdevallia attenuata* is closely related to *M. laucheana* and *M. scabrilinguis*, all three of which occur in Costa Rica and Panama, with a disjunct population of *M. attenuata* in Ecuador.

Masdevallia attenuata is characterized by a white, tubular flower usually with three thin, purple stripes on each sepal. The flower is often followed by a second flower. The sepaline tails are yellow or orange, a little longer than the blades. The petals are acute at the apex, unguiculate at the base, and with a minute process between the middle and lower thirds. The apex of the oblong lip is subacute with a verrucose callus inside the margins. The pair of calli on the disc are obtusely angled near the middle.

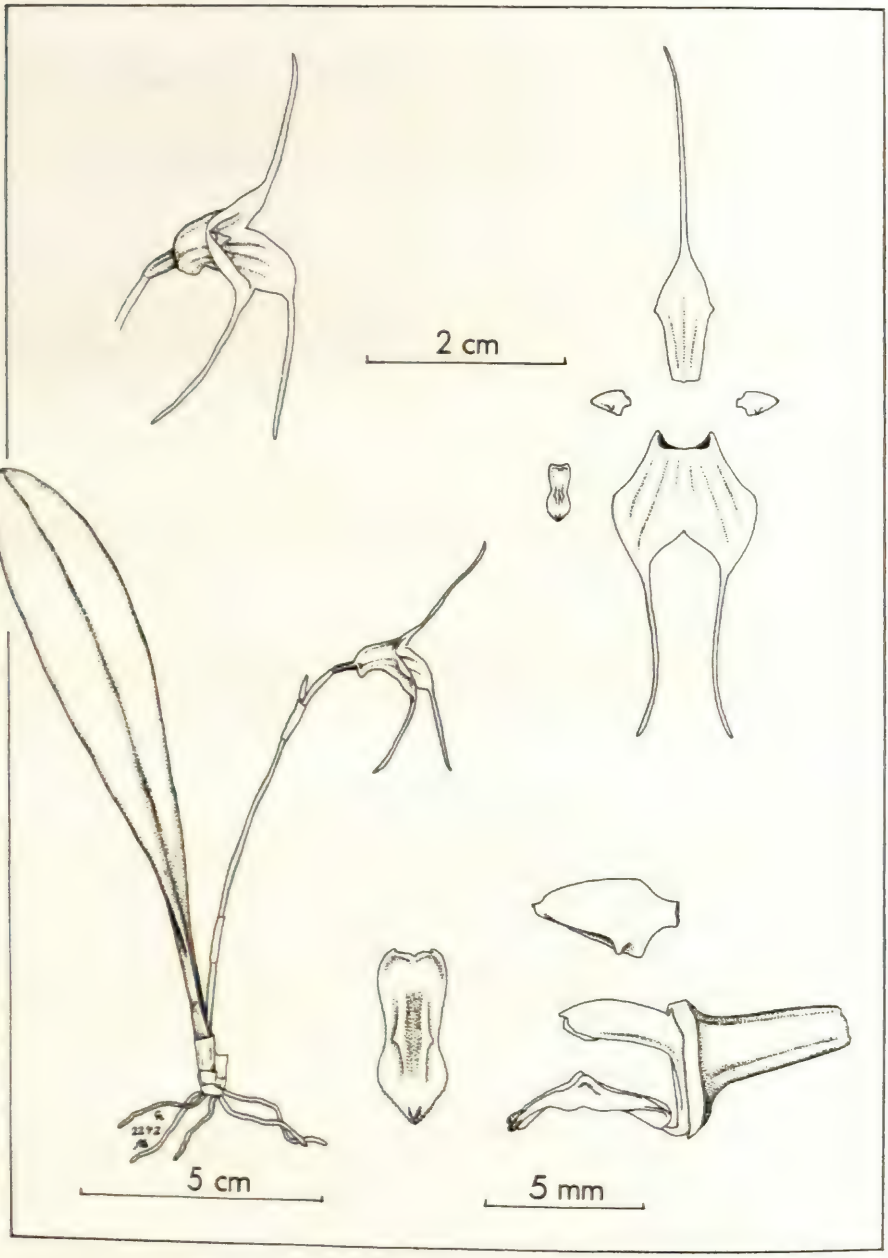


Plate 366. Masdevallia attenuata

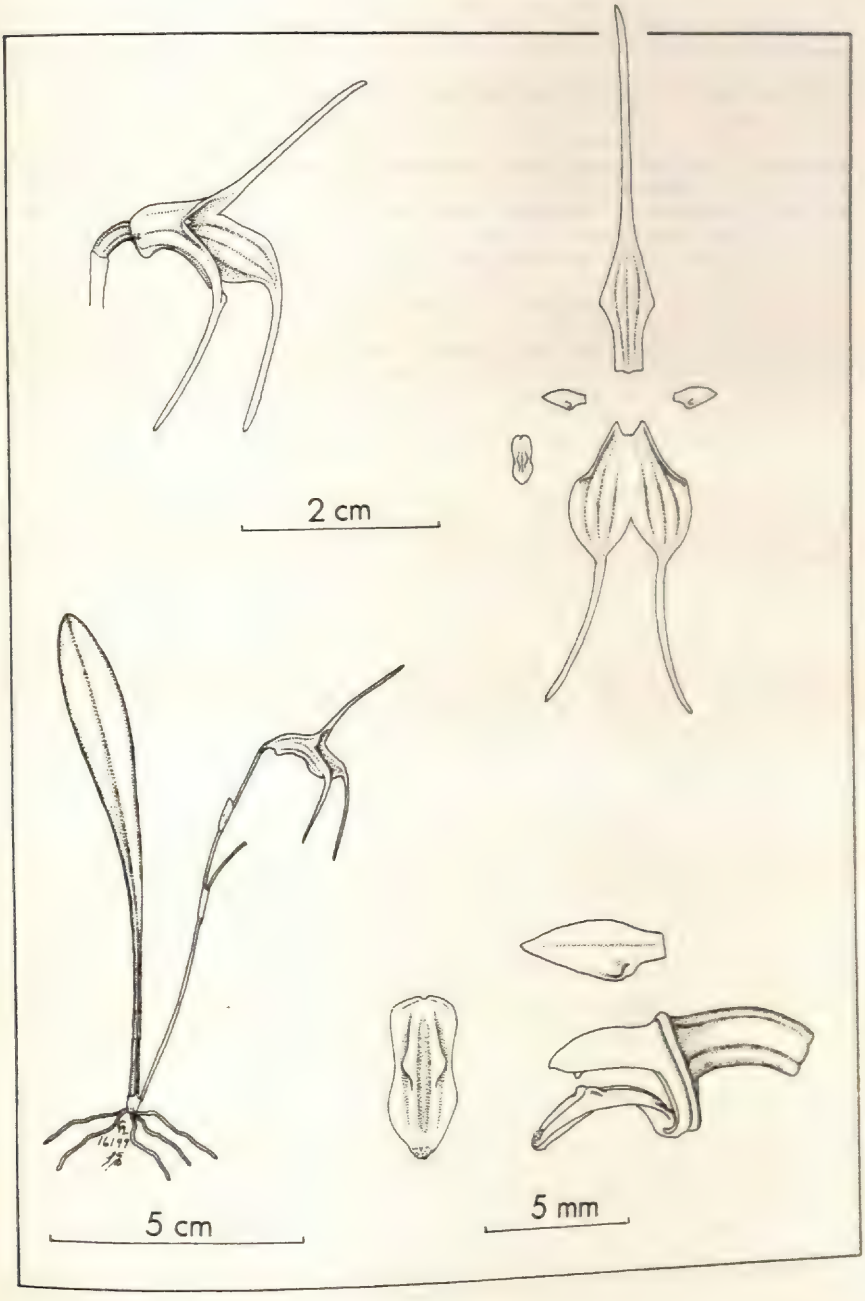


Plate 367. Masdevallia attenuata

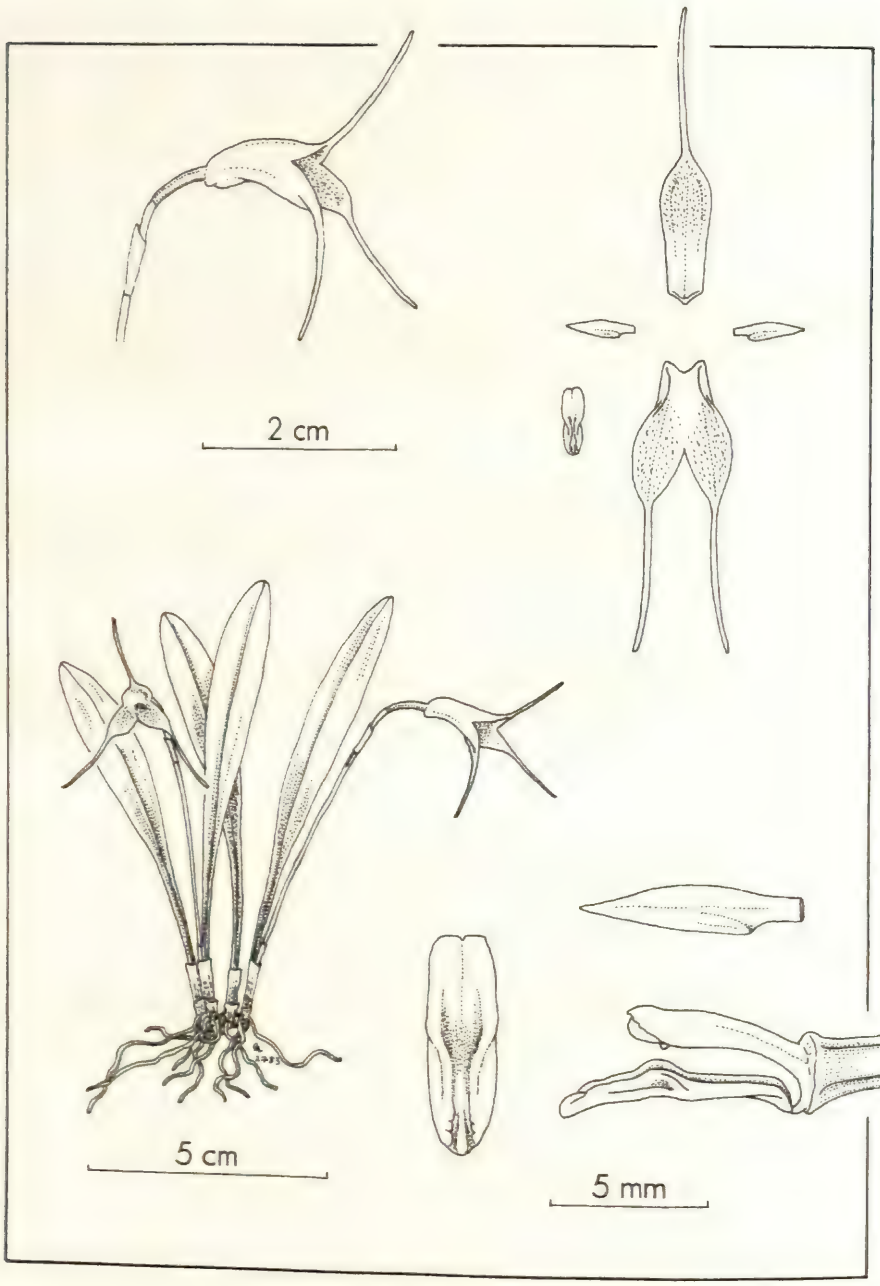


Plate 368. *Intermediate between*
M. attenuata *and* M. scabrilinguis

Masdevallia chontalensis Rchb. f., Otia Bot. Hamburgensia 1: 17, 1878.

Ety.: Named for the Nicaraguan Department of Chontales where the species was first discovered.

Syn.: *Masdevallia diantha* Schltr., Beih. Bot. Centralbl. 36(2): 384, 1918.

Ety.: From the Greek *dianthos*, "two-flowered," referring to the usually two-flowered inflorescence.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 5-10 mm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 3-7.5 cm long including an indistinct petiole, the blade narrowly obovate, subacute 0.5-0.9 cm wide, gradually narrowed below the middle to the subpetiolate base. **Inflorescence** a congested, simultaneously 2-flowered raceme (occasionally 1-flowered and occasionally one flower following the other) borne by a slender, erect, terete peduncle 4-7.5 cm long, with a bract below the middle, from low on the ramicaul; floral bracts 2, thin, imbricating, 5-6 mm long; pedicels 3-5 mm long; ovary green, smooth to subverrucose, 2-3 mm long; **sepals** white, glabrous, the blade of the dorsal sepal 7-9 mm long, 2-2.5 mm wide, connate to the lateral sepals for 5-7 mm into a cylindrical tube, the free portion broadly triangular, the obtuse apex contracted into a thick, yellow tail 3-7 mm long, the lateral sepals oblong, 7-8 mm long, 2.5-3 mm wide, connate 6-7 mm, the subacute apices contracted into thick, yellow tails 3-5 mm long similar to that of the dorsal sepal; **petals** white, oblong, 3-3.3 mm long, 1-1.3 mm wide, the truncate apex obscurely trilobulate, with a low carina along the labellar margin ending in a short, acute, erect tooth between the middle and lower thirds; **lip** yellow, occasionally lightly speckled with brown, oblong, slightly wider above the middle, 3.75-4 mm long, 1.5-2 mm wide, the apex brown, obtuse to rounded, the margins minutely erose, the disc with a pair of low, longitudinal calli converging above the middle, the base subcordate, hinged below; **column** white, semiterete, 3 mm long, the foot 1 mm long with a short, incurved extension.

NICARAGUA: **Chontales**: Feb. 1867, *Dr. Seemann 180* (Holotype: W; Isotype: K). **Granada**: summit of Mt. Mombacho, alt. 1600 m, 18 Dec. 1940, *V. Grant 791* (AMES); Volcán Mombacho, alt. 1300 m, 5 Jan. 1967, *A. Molina 20001* (LE, W). **Matagalpa**: Sta. Maria Ostuma, alt. f1500 m, 20 Feb. 1963, *L.O. Williams et al. 24684* (SEL).

GUATEMALA: **Izabal**: Cerro San Gil, *J.A. Steyermark 41957* (AMES, MO).

COSTA RICA: without locality, 1867, *A. Endres 82* (W). **Alajuela**: Cerro de San Isidro de San Ramón, alt. 1300 m, 6 June 1901, *A.M. Brenes 14290* (holotype of *M. diantha* presumably destroyed at B, lectotype: US; isotypes: AMES, CR, K); Los Angeles de San Ramón, alt. 1050 m, July 1921, *A.M. Brenes 46* (AMES); San Carlos, Zapate, alt. 1575, 4 July 1938, *A. Smith H839* (AMES); Alfaro Ruiz, El Silencia de Zarcero, alt. 1450 m, 24 Aug. 1938, *A. Smith H1131* (AMES); between San Ramón and Balsa, alt. 1150 m, 10 Sept. 1977, *W.D. Stevens 14087* (MO). Río Peñas Blancas, alt. 850 m, 4 Dec. 1989, *E. Bello 1549* (CR, MO). **Cartago**: Alto de La Estrella, 26 Mar. 1924, *P.C. Standley 39083* (AMES); Cerro de La Carpintera, alt. 1500-1850 m, Feb. 1924, *P.C. Standley 34242, 34244* (AMES); Carpintera, alt. 5,000 ft., 23 May 1928, *Stork 2138* (AMES); Orosí, 30 Mar. 1924, *P.C. Sandley 39914* (AMES); Coronado, 22 Dec. 1935, *C.H. Lankester s.n.* (AMES); Río Grande de Orosí, alt 1220 m, 1 Jan. 1970, *R. Lent 1804* (SEL); Paraíso, Río Grande de Tapantí, alt. 1250 m, 2 June 1994, *J.F. Morales & G. Carnevali 2885* CR, MO). **Guanacaste**: Quebrada Serena, southeast of Tilarán, alt. 700 m, 27 Jan. 1926, *P.C. Standley & J. Valerio 46321* (AMES); slopes of Miravalles, above Bijagua, alt. 1500 m, Nov. 1982, *L.D. Gómez 18140* (CR, MO); Cordillera de Tilarán, Las Nubes de Río Chiquito, alt. 1300 m, 4 Sept. 1988, *W. Haber & W. Zuchowski 8713* (CR, MO); Abangares, north of Monteverde, alt. 1300 m, 2 Feb. 1989, *W. Haber & W. Zuchowski 9091* (CR, MO), south of Santa Cecilia, Estación Pitilla, alt. 700 m, 24 Oct. 1990, *C. Chavez 345* (CR, K). **Heredia**: San Geronimo, alt. 1350 m, June 1921, *C. Werckle 54* (AMES); La Palma, alt. 1290 m, 18 Nov. 1922, *A.M. Brenes (33)363* (AMES); near San Isidro and La Palma, alt. 1500-1600 m, 20 Dec. 1881, *F.C. Lehmann 1060* (AMES, BR, K); above San Jerónimo, alt. 1800 m, 18 Sept. 1979, *C. Luer et al. 4197* (SEL); Sarapiquí, west of Río Peje, alt. 600 m, 30 Nov. 1990, *S. Ingram & K. Ferrell 756* (AMES, CR, K, SEL). **Puntarenas**: Monteverde, alt. 1600-1750 m 17 July 1986, *W. Haber & E. Bello 5313* (MO); Río Peñas Blancas, alt. 850 m, 2 Sept. 1988, *E. Bello 349* (CR,

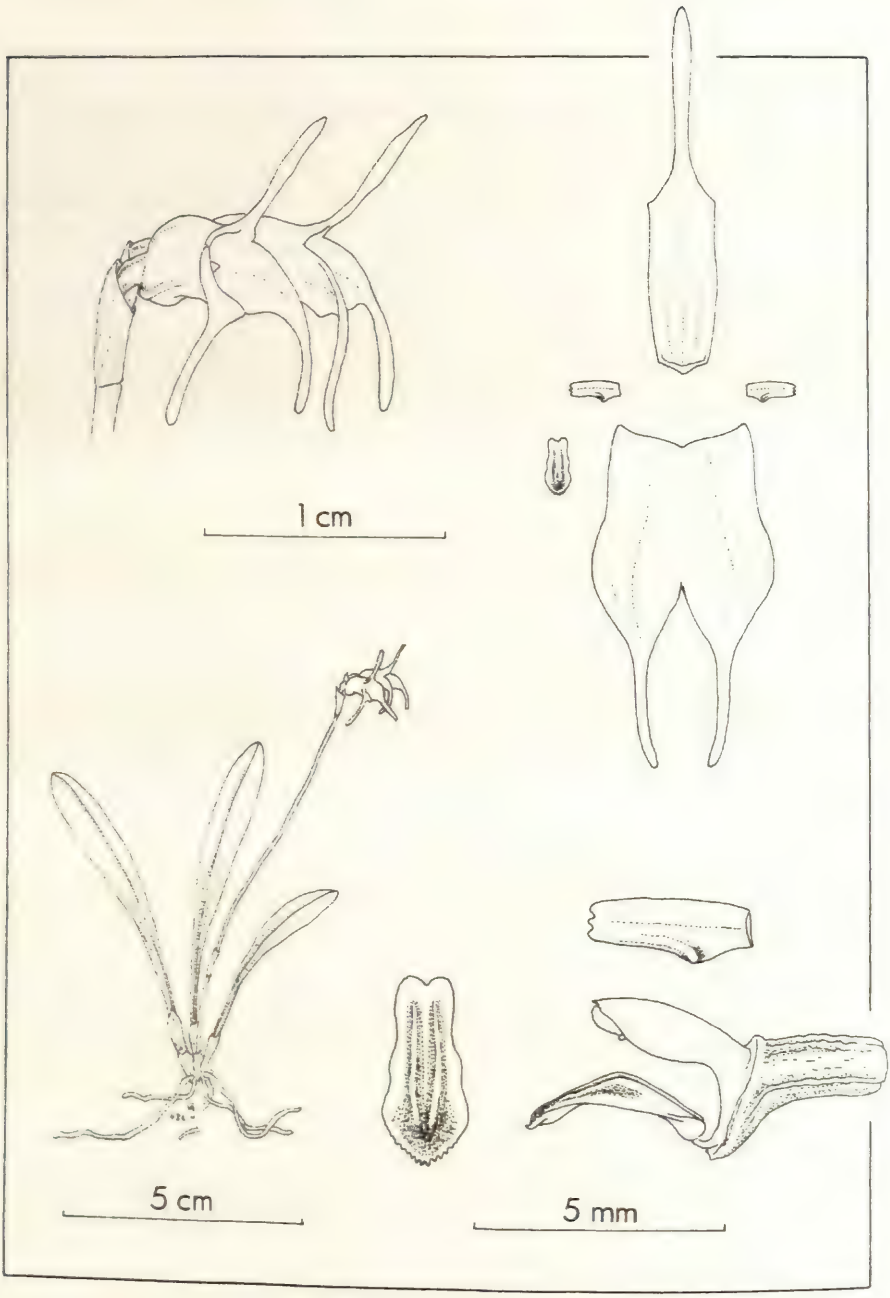


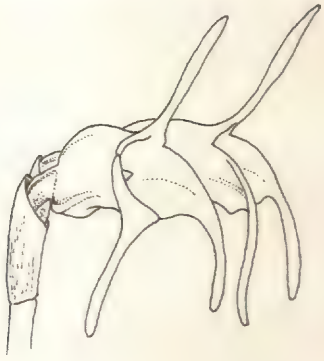
Plate 369. Masdevallia chontalensis

MO). **San José**: near La Palma, road to La Hondura, alt. 1500-1700 m, 17 July 1923, *W.R. Maxon & A.D. Harvey 8117* (AMES); La Hondura, alt. 1300-1700 m, 2-4 Mar. 1924, *P.C. Standley 36159, 36184, 36239, 36373, 36380, 36423, 36439, 36444, 36478, 36523, 36611* (AMES); La Palma, alt. ca. 1600 m, 17 Mar, 1924, *P.C. Standley 38284, 38310* (AMES); Cerro El Espino, alt. 1800 m, 31 May 1985, *M. Chavarría & A. & L. Chacón 7* (CR); old road to Bajo La Hondura, alt. 1500 m, 17 June 1993, *J.F. Morales et al. 1537* (MO).
PANAMA: **Chiriquí**: Cerro Colorado, Río San Felix, alt. 1400 m, 15 July 1976, *T.B. Croat 37201* (MO); vicinity of Fortuna dam, alt. 1100 m, 4 Dec. 1987, *G. McPherson 11777* (MO); **Veraguas**: Near Santa Fe, 5 May 1977, *J.P. Folsom 2986* (MO); trail to Cerro Tute, west of Santa Fe, alt. 800-1350 m, 5 June 1982, *S. Knapp & R. Dressler 5422* (MO). **Coclé**: El Valle, north rim, 21 May 1939, *P.H. Allen 1826* (MO); north of El Valle, trail to Las Minas, alt. 1000 m, 2 Dec. 1941, *P.H. Allen 2879* (AMES); above El Valle, alt. 1000 m, 6 Mar. 1976, *C. Luer et al. 750* (SEL); Alto Calvario, alt. 800-900 m, 20 Apr. 1977, *J.P. Folsom & A. Jaslon 2707* (MO); El Valle, La Mesa, 28 Apr. 1977, *J.P. Folsom & H. Butcher 2817* (MO); east of El Copé, alt. 2,200 ft., 21 June 1978, *B. Hammel 3576* (MO). **Panama**: Cerro Azul, alt. 700 m, 18 May 1941, *A.S.B. Fairchild 2532* (SEL); railroad crossing and Guillard highway, 21 June 1994, *T.B. Croat & G. Zhu 76293* (MO). **Darien**: Parqué Nacional Darién, near Cerro Sapo, alt. 800 m, 25 May 1991, *H. Herrera et al. 1005* (MO).
?VENEZUELA: near Colonia Tovar, 1967, collected and cultivated by *L. Severin, s.n.* (MO).

This species is common in Central America at moderately low altitudes. A painting of this species from Costa Rica by F.C. Lehmann is deposited at Kew. An illustration and a description by Endres (*Endres 82*) made about 1867 with the proposed name "Masdevallia geminiflora" is among Reichenbach's specimens at Vienna. About the same time, Reichenbach described the species from a Nicaraguan collection by Seemann.

Masdevallia chontalensis is easily recognized by the small habit with a peduncle about as long as the narrowly obovate leaves, that bears a pair of small, simultaneous, white flowers. The sepaline tails are short and thick. The petals are oblong with the truncate apex obscurely tridentate. A tiny, pointed tooth is present between the middle and lower thirds. The lip is oblong, slightly dilated above the middle, and a pair of low calli are present on the disc.

Masdevallia geminiflora, a close relative from low, western forests of the Andes, is distinguished by larger flowers; longer, more slender sepaline tails; petals with the apex obtuse and obscurely bilobulate; and the lip with a pair of prominent lamellae near the constricted middle above which the lip is dilated toward the apex.



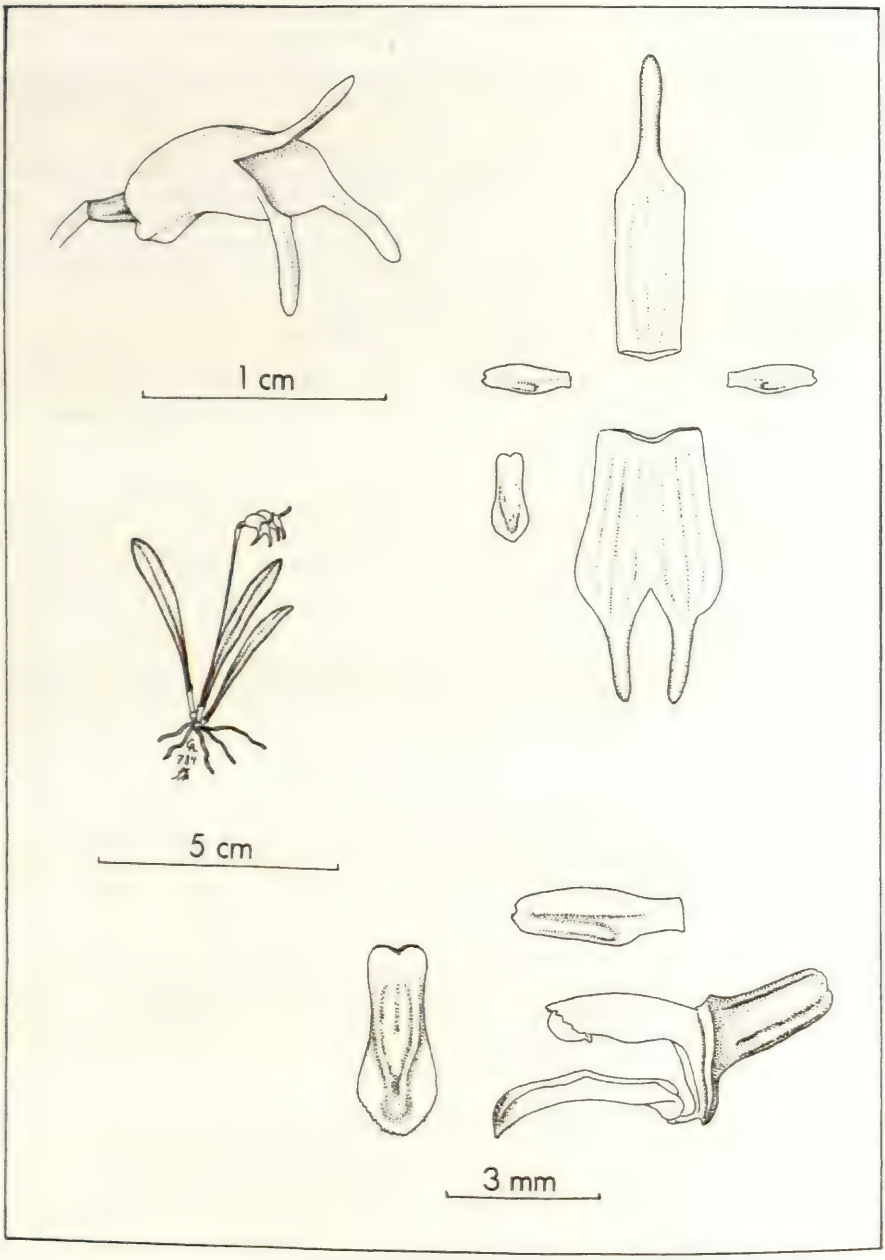


Plate 370. Masdevallia chontalensis

Masdevallia crescenticola Lehm. & Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 428, 1921.

Ety.: From the genus *Crescentia*, a tree, and *-icola*, "dwelling upon," referring to the habitat of the plants discovered.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect to suberect, slender, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical-obovate, subacute, 9-14 cm long, 1.7-1.9 cm wide, gradually narrowed below to the indistinctly petiolate base. **Inflorescence** a single flower borne by a slender, horizontal to descending peduncle 4-5 cm long, dotted with purple, with two distant bracts below the middle, from low on the ramicaul; floral bract thin, tubular, 6 mm long; pedicel 7 mm long; ovary 5 mm long, with 6 minutely undulate ribs; **sepals** light green, glabrous, minutely verrucose within, the dorsal sepal obovate, 13 mm long, 6 mm wide, connate to the lateral sepals for 7-8 mm to form a cylindrical tube, the triangular free portion acute, gradually contracted into a decurved tail ca. 10 mm long, the lateral sepals diffusely dotted with purple above the middle with purple suffusion below the middle, obovate, 16 mm long, 8 mm wide, connate 11 mm, the free portions rounded, abruptly contracted into tails 1.5 mm long; **petals** white, elliptical, 5 mm long, 2.25 mm wide, the apex subtruncate with an acute apiculum, the upper margin broadly dilated near the middle, the lower half with a longitudinal callus above the margin, ending in an erect lobule with a purple spot, between the middle and lower thirds; **lip** rose, diffusely dotted with purple, oblong, 5 mm long, 1.75 mm wide, the apex obtuse, the disc with a low pair of slightly converging calli, the base truncate, hinged on the end; **column** white with purple margins, semiterete, 4.5 mm long, the foot thick, 2 mm long with an incurved extension.

ECUADOR: **Esmeraldas**: common in *Crescentia* trees, Río Bogotá, near Concepción in the plains, 18 Sept. 1874, *F.C. Lehmann 230* (Holotype: W).
COLOMBIA: **Chocó**: Bahia Solano, "Mecana arriba," alt. 200-300 m, collected and cultivated by G. Misas, 12 Aug. 1975, *R. Escobar 1459* (JAUM); same collection, flowered in cultivation by M. & O. Robledo at La Ceja, 15 Oct. 1977, *C. Luer 2047* (SEL); Quebrada Resaquita, alt. 150-200 m, collected by L.C. Vieira et al., 25 July 1975, *R. Escobar 3591* (JAUM).

This species is rare but locally abundant in the Pacific lowlands from Bahia Solano in Colombia into Esmeraldas in Ecuador. The type locality was erroneously cited as in Colombia, probably because of the name of the river, Río Bogotá. Lehmann's unlabeled watercolor painting, *t. 84*, presumably of the type of this species, is at Kew.

The inflorescence is more or less pendent, the peduncle bearing a flower with a broadly expanded synsepal dotted with purple. The rounded apices are abruptly contracted into minute tails. A small, acute tooth is present between the middle and lower third of the petal as seen in *M. minuta* and its relatives.

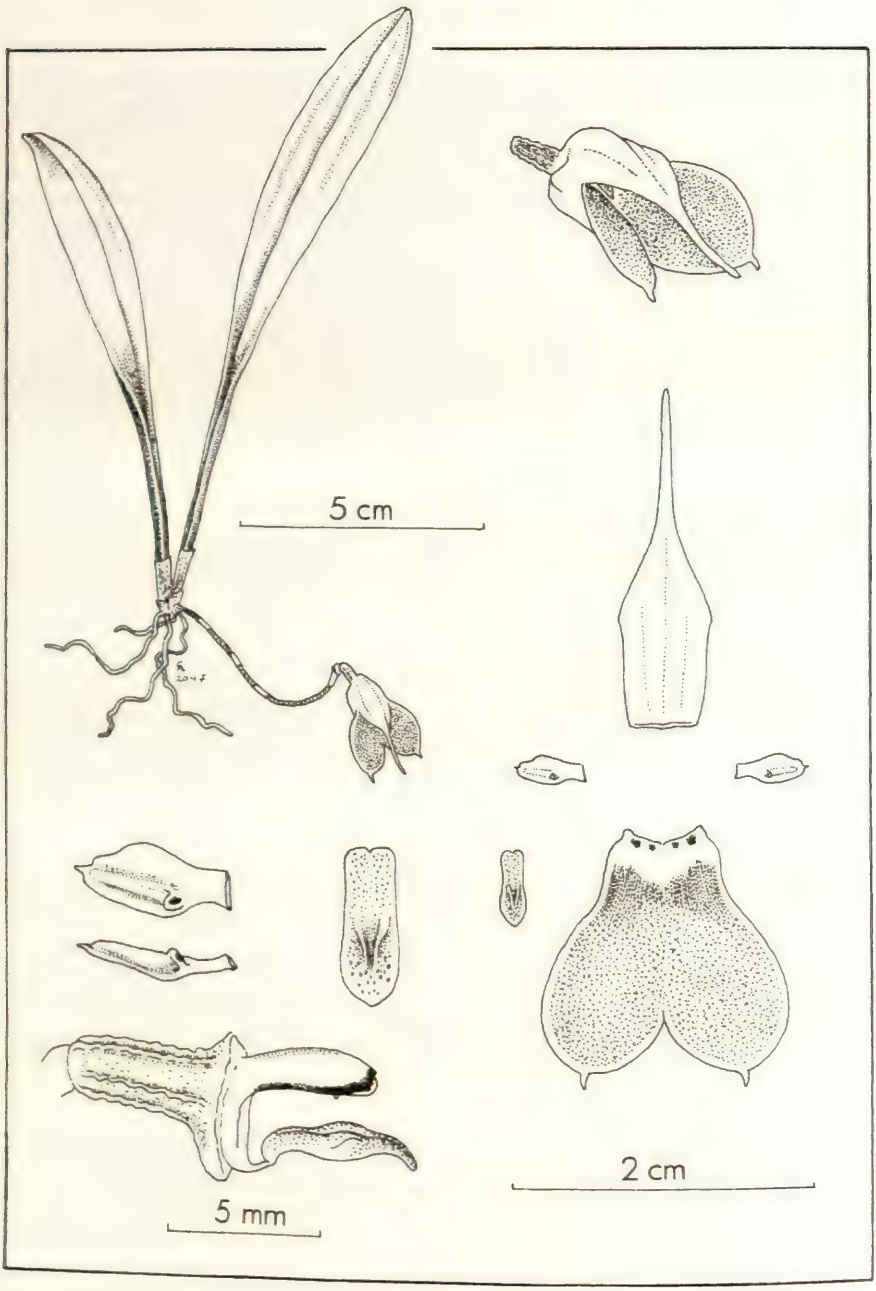


Plate 371. Masdevallia crescenticola

Masdevallia flaveola Rchb.f., Gard. Chron. n.s. 21: 638, 1884.

Ety.: From the Latin *flaveolus*, "a little bit yellow," referring to the size and color.

Plant small, to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-1.5 cm long, enclosed by 2-3 thin, close, tubular sheaths. **Leaf** erect to suberect, coriaceous, narrowly obovate, subacute to obtuse, 4-9 cm long including an indistinct petiole 1-2.5 cm long, 1.2-1.7 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a loose, successively few-flowered raceme, up to 3 cm long, borne by a slender, erect peduncle, 7-10 cm long, with a bract below the middle, from low on the ramicaul; floral bracts tubular, 5-7 mm long; pedicels 5-9 mm long; ovary 5-6 mm long; **sepals** white to light yellow-green, microscopically pubescent within, the dorsal sepal obovate, 8 mm long, 5 mm wide, connate to the lateral sepals for 4.5 mm into a cylindrical tube, the free portion triangular with the apex obtuse, contracted into an erect, thickened, subclavate, orange tail 10-12 mm long, the lateral sepals suffused with brown below the middle, oblong, oblique, 7-8 mm long, 3.5-4 mm wide, the apices obtuse, contracted into tails similar to that of the dorsal sepal, connate basally for 3-4 mm to form a mentum with the column-foot; **petals** yellow-white, ovate, subunguiculate, 5 mm long, 2.5 mm wide, the apex brown, obtuse, obscurely notched, the labellar margin thickened, ending in an obtuse callus at the angle between middle third and the claw; **lip** yellow to greenish, oblong, 6 mm long, 2 mm wide, the apex acute, thick, verrucose, with a verrucose callus and with denticulate-erose margins, the disc shallowly sulcate between a longitudinal pair of oblique calli with angles near the middle, the base subcordate, hinged beneath; **column** yellow-white with the margins purple, semiterete, 4 mm long, the foot 1.5 mm long with a short, incurved extension.

COSTA RICA: Without locality, collected by Hübsch for F. Sander, 1884, cultivated by *F. Sander 7* (Holotype: W). **Cartago**: Cachi, alt. 3,500-5,000 ft., 1923, *C.H. Lankester & Sancho 377* (AMES); Cachi, 27 Sept. 1925, *C.H. Lankester 1058* (AMES). **Limón**: eastern Atlantic range, between Orosí and Río Macho, alt. 1250 m, collected by Cl. Horich, 1982, cultivated by *W. Königer s.n.* (M, MO, SEL); Río Macho, collected by R. Escobar, July 1983, cultivated at Colomborquídeas, 7 May 1993, *C. Luer 16714* (MO). Without collection data, cultivated by D. Richardson *3082*, 14 Nov. 1977, *C. Luer 2196* (SEL).
PANAMA: **Chiriquí**: northeast of Boquete, Río Palo Alto, 19 Nov. 1978, *B. Hammel 5757* (MO).

This species is uncommon in Costa Rica and adjacent Panama. It is related to *M. attenuata* and *M. laucheana*, but distinguished from them by the loose raceme of successive, small, yellowish flowers with the sepaline tube constricted above a mentum formed with the column-foot. Most distinctive are the orange, clavate, sepaline tails.

The petals are provided with an obtuse callus at the marginal angle with the subunguiculate base. The apex of the lip bears a verrucose callus.

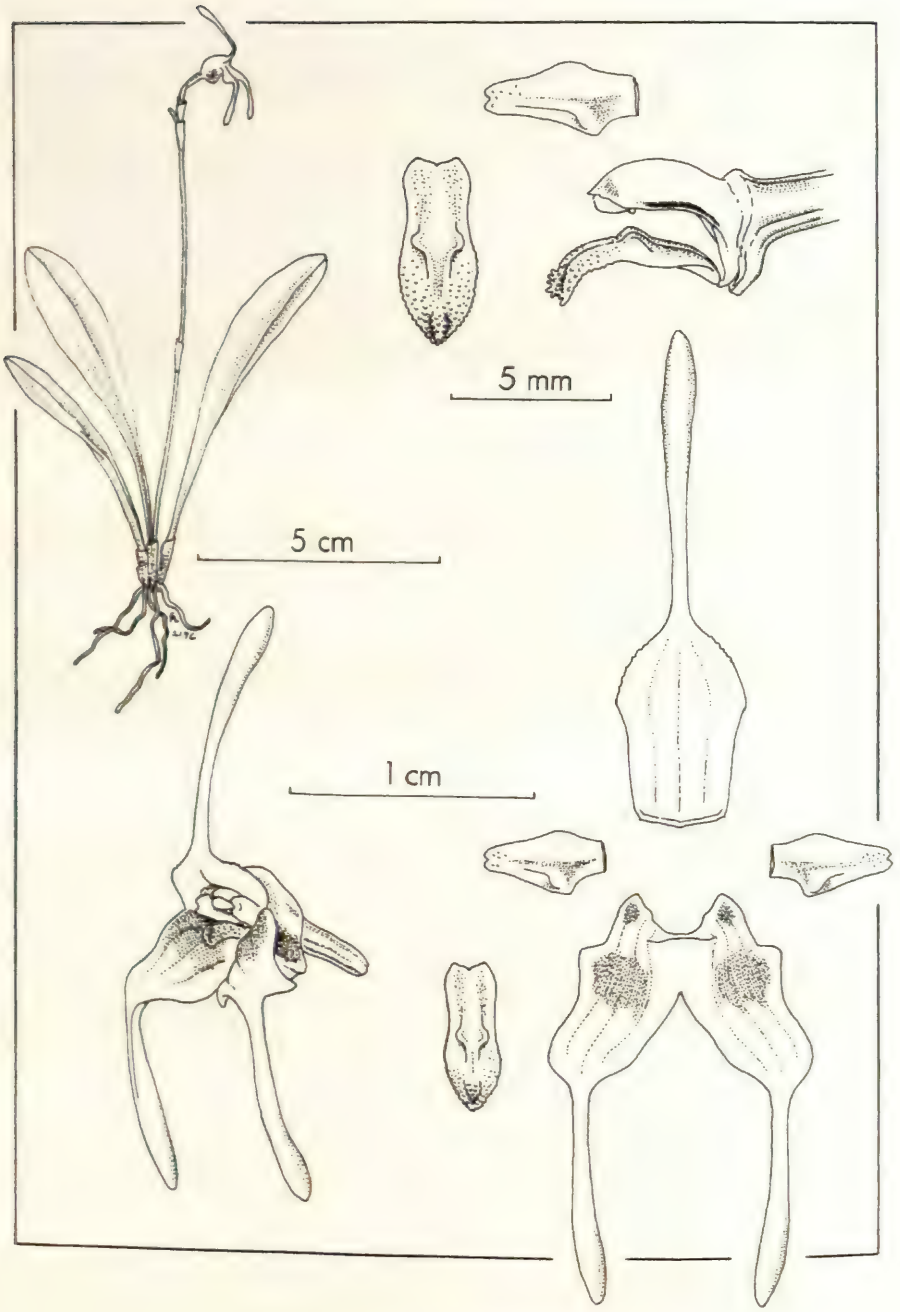


Plate 372. Masdevallia flaveola

Masdevallia floribunda Lindl., Bot. Reg. 29: Misc. 72, 1843.

Ety.: From the Latin *floribundus*, "with many flowers," referring to the free-flowering habit of the species.

Syn.: *Masdevallia galeottiana* A.Rich. & Galeotti, Ann. Sci. Nat. Bot. ser. 3, 3: 17, 1845.
Ety.: Named in honor of H. Galeotti, Italian botanist, who collected extensively in Mexico.

Syn.: *Masdevallia lindeniana* A.Rich. & Galeotti, Ann. Sci. Nat. Bot. ser. 3, 3: 17, 1845.
Ety.: Named in honor of Jean Linden, Belgian grower and extensive collector of orchids.

Syn.: *Masdevallia myriostigma* Morren, Belgique Hort. 25: 361, 1875, as *myriosigma*.
Ety.: From the Greek *myriostigma*, "myriad eye-spots," referring to the numerous, tiny dots.

Syn.: *Masdevallia tuerckheimii* Ames, Orchidaceae 2: 265, 1908.
Ety.: Named in honor of Hans von Türckheim who collected this species in Guatemala.

Syn.: *Masdevallia floribunda* ssp. *tuerckheimii* (Ames) Luer, Lindleyana 3: 32, 1988.

Syn.: *Masdevallia burzlaffiana* Königer, Arcula 3: 65, 1995.
Ety.: Named for Ingrid Burzlaff of Graasten, Denmark, who cultivates this species.

Plant small to medium in size, epiphytic, densely caespitose; roots slender. Ramicauls slender, erect, 1-2 cm long, enclosed by 2-3 thin, close, tubular sheaths. **Leaf** erect to suberect, coriaceous, 5-13 cm long including the petiole 2-3 cm long, the blade elliptical, obtuse, 1.2-2.2 cm wide, cuneate below into the petiole. **Inflorescence** a single flower, often followed by a second flower, borne by a slender, erect to suberect peduncle, 1.5-12 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 5-8 mm long; pedicel 5-15 mm long; ovary 3-4 mm long, more or less spotted with purple; **sepals** white to pale yellow or pale rose, variously dotted or spotted with purple, variously suffused with purple toward the base, microscopically pubescent within, the dorsal sepal obovate, 8-13 mm long, 5-6 mm wide, 3-veined, connate to the lateral sepals for 5-7 mm into a cylindrical tube, the free portion broadly triangular, with microscopically erose margins, the apex contracted into an erect, slender, green to brown tail 10-15 mm long, the lateral sepals obovate, oblique, connate 9-15 mm to form a lamina 10-18 mm long, 12-15 mm wide expanded, 6-veined, the obtuse apices contracted into slender tails 4-10 mm long; **petals** white, elliptical-oblong, 4.5-5 mm long, 2 mm wide, the apex truncate, minutely tridentate, the labellar margin with a longitudinal callus ending in a short, pointed process between the middle and lower thirds; **lip** white, heavily dotted with purple, oblong, 5-5.5 mm long, 2 mm wide, the apex rounded, microscopically verrucose, the disc with a low, longitudinal pair of oblique calli above the middle, the base subcordate-truncate, hinged beneath; **column** white with purple margins, semiterete, 4-5 mm long, the foot 1.5 mm long with an incurved extension.

MEXICO: without collection data (possibly collected by H. Galeotti in Vera Cruz in 1840), cultivated in Sevenoaks, England, ca. 1842, by *J. Rogers s.n.* (Holotype: K). **Vera Cruz**: alt. 3,000 ft., 1840, *H. Galeotti 5075* (holotype of *M. galeottiana*: isotypes: P, G, K, W); Mirador, *J. Linden 193* (W, type of *M. lindeniana*); without specific locality, ca. 1840, *F.E. Leibold s.n.* (HAL, K); "parasitica in sylvis umbrosis circa Mirador," Nov. 1841, *F.M. Liebmann 7060* (orchid nr. 380) (C); same area, Nov. 1841, *F.M. Liebmann 7061* (orchid no. 382) (C); at Aguas jantas prope Mirador, *F.M. Liebmann 7062* (orchid no. 383) (C); Xalapa, *F.E. Leibold 658* (W); southwest of Vera Cruz, from M. Omer de Malzaine, cultivated in Liège, by *Messrs. Jacob and Makoy s.n.* (?holotype of *M. myriostigma*: W); apparently same collection, ex hort MeEsq 1876, (W) 2962; Orizaba, 1904, *C.A. Purpus s.n.* (AMES, BR). near Zacuapan, alt. 900 m, 11 July 1936, *C.A. Purpus 2935* (AMES); Cordoba, Aug. 1936, *E. Matuda 375* (AMES); bridge before Huatuscom, 5 Aug. 1971, *Nevling & Gómez-Pompa 2432* (AMES); Cordova, Jan. 1890, *H. Finch s.n.* (K); El Mirador, Totutla, alt. 950 m, 25 July 1973, *F. Ventura A. 8690* (MEX, P); collected by R.L. Dressler, cultivated 30 Nov. 1980, *C. Luer 5600* (SEL); Cuautlapán, collected by R. McDiarmid, flowered in cultivation at SEL, 17 June 1977, *C. Luer 2908* (SEL). **Oaxaca**: Tuxtepec, Cerro Frijol, alt. 550 m, 29 Apr. 1939, *R.E. Schultes & B.P. Reko 694* (AMES). **Chiapas**: La Trinitaria, NE of Dos Lagos above Santa Elena, alt. 1170 m, 15 Dec. 1981, *D.E. Breedlove 56225* (AMES); Ocosingo, road to Ixcan, alt. 150 m, 10 Sept. 1985, *E. Martinez S. 13518, 13611* (MEXU, MO); Ocosingo, road to Chajul, alt. 130 m, 10 Jan. 1986, *E. Martinez 15941* (MEXU, MO); Río Chixoy above Boca Lacantum Chajul road, alt. 130 m, 12 Jan. 1986, *E. Martinez 16147* (MEXU, MO).

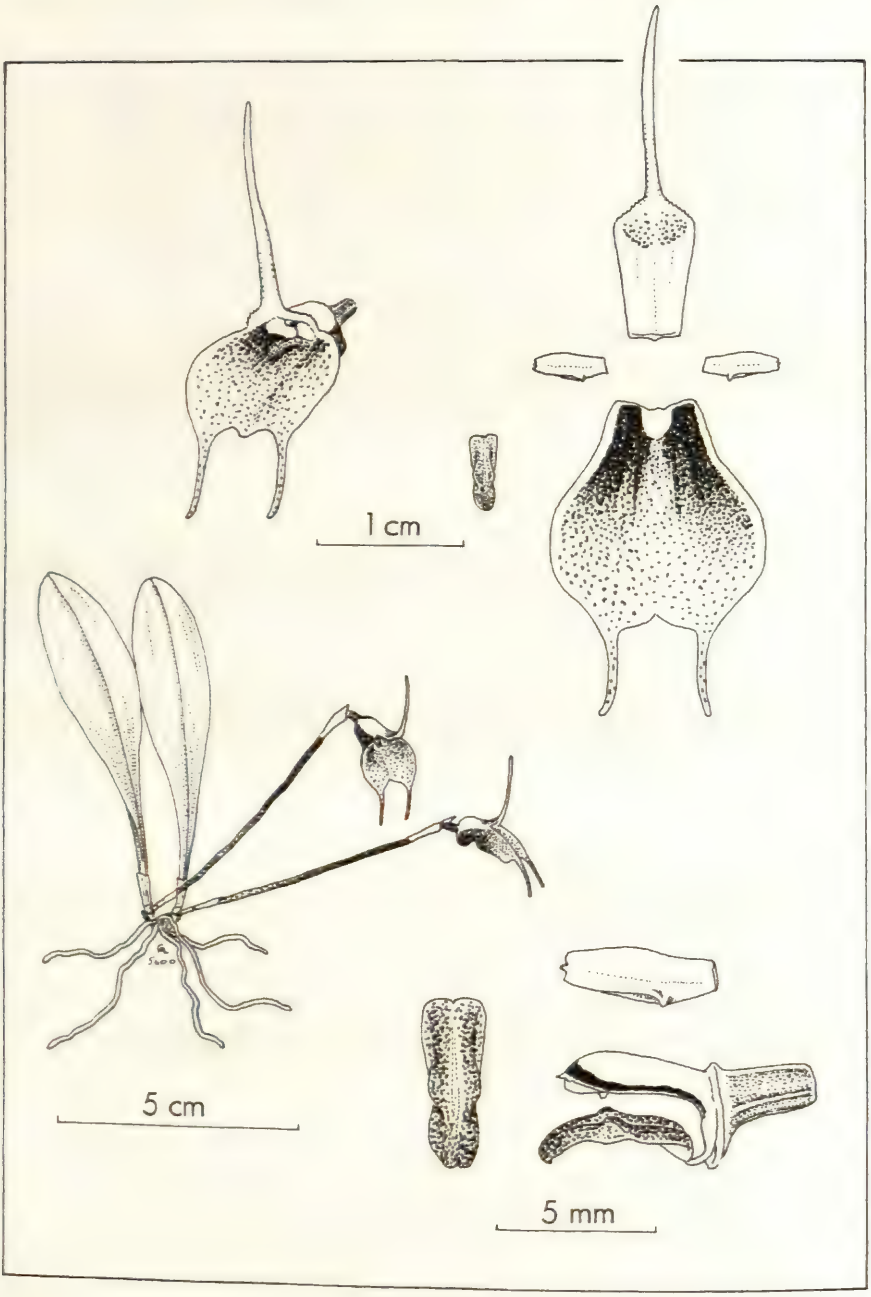


Plate 373. Masdevallia floribunda
(*M. galeottiana*)

GUATEMALA: **Alta Verapaz**: San Juan de Chamelco, 1 May 1882, *F.C. Lehmann 1405* (G); Cubilquitz, alt. 350 m, Aug. 1903, *H. von Türckheim II 464* (holotype of *M. tuerckheimii*: AMES; isotypes: B, BR, E, G, W); Cobán, alt. 1350 m, Dec. 1912, *H. von Türckheim 3996* (AMES, LD); Cobán, collected by O. Tinschert, cultivated 6 Jan. 1983, *C. Luer 8517* (SEL). **Izabal**: along Río Frio, alt. 75 m, 17 Dec. 1941, *J.A. Steyermark 39966* (AMES). Without collection data, cultivated by I. & H. Burzlaff in Gråsten, Denmark, *W. Königer WK-39* (holotype of *M. burzlaffiana*: M; isotype: USCG; clonotype: MO), C. Luer illustr. 19446.

BELIZE: Toledo District, Union Camp, alt. 720 m, 28 Sept. 1980, *B.R. Adams 277* (K); near Belize, collected by G. Pfister, cultivated by B. Würstle at Spielberg, Germany, 6 Sept. 1981, *C. Luer 6457* (SEL); along river west of Rio Frio Caves, near Augustine, Dec. 1984, *P.M. Catling & V.R. Brownell B35* (AMES); southern Maya Mountains, alt. 420 m, without date, *G. Davidse & D.L. Holland 36634* (MO); Cayo, 8 Km. from Las Cuevas, alt. 455 m, without date, *T. Hawkins 1210* (MO).

HONDURAS: **Comayagua**: Siguetepegue, alt. 3,700 ft., 11 Nov. 1932, *J.B. Edwards 312* (AMES). **Cortes**: Santa Cruz de Yojoa, alt. 2,000 ft., 16 Nov. 1933, *J.B. Edwards 596* (AMES, K). Without locality, collected by F. Fuchs, Jr., cultivated 14 Feb. 1981, *C. Luer 5839* (SEL).

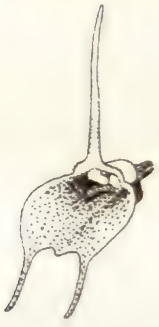
COSTA RICA: without locality, *A. Endres 25* (W); near Agua Caliente, alt. 1500 m, 5 Jan. 1882, *F.C. Lehmann 1076* (W).

COLOMBIA: "Nova Granada," cultivated at St. Petersburg Botanical Garden, 1 Nov. 1889, as *M. myriostigma* (LE).

This species is relatively frequent in its distribution through southern Mexico and Guatemala into Honduras, but rarely, as far as Costa Rica. It is the only species of *Masdevallia* known from Mexico where it has the northernmost distribution of any species in the genus. It was collected independently by Galeotti and Leibold in Vera Cruz in 1840, and described by Lindley in 1843 from a cultivated specimen. In 1845, A. Richard and Galeotti published two color-forms, the purple-spotted color-form as *M. galeottiana* and the pale yellow color-form as *M. lindeniana*. A larger-flowered, densely purple-spotted color-form from Guatemala was published by Ames as *M. tuerckheimii*. The sepals of flowers from Honduras are pale, nearly white, and smaller-flowered.

Masdevallia floribunda is a medium-sized, caespitose plant characterized by narrowly obovate leaves borne by short ramicauls. The inflorescence is a successively few-flowered raceme borne by a slender peduncle of varying lengths. The lateral sepals are connate into a broad synsepal that is variously dotted or spotted with purple, and with tails much shorter than that of the dorsal sepal. The petals are minutely tridentate at the apex, and callous along the labellar margin that ends with a minute point between the middle and lower thirds. The lip is oblong with more or less oblique, longitudinal calli that are similar to those of subgenus *Polyantha*.

Typical *M. floribunda* is characterized by peduncles about as long as the leaves, and smaller than average flowers with pale yellow, dotted sepals. The variation considered to be *M. tuerckheimii* is distinguished by shorter peduncles, and larger than average flowers with densely purple-spotted sepals. Even within a single area, too many intermediates between the extremes exist to recognize any of the above synonymous names. The longitudinal convexity between veins of the lateral sepals noted on a clone described as *M. burzlaffiana* are often present, especially in *M. tuerckheimii*, but to a lesser degree, in other clones.



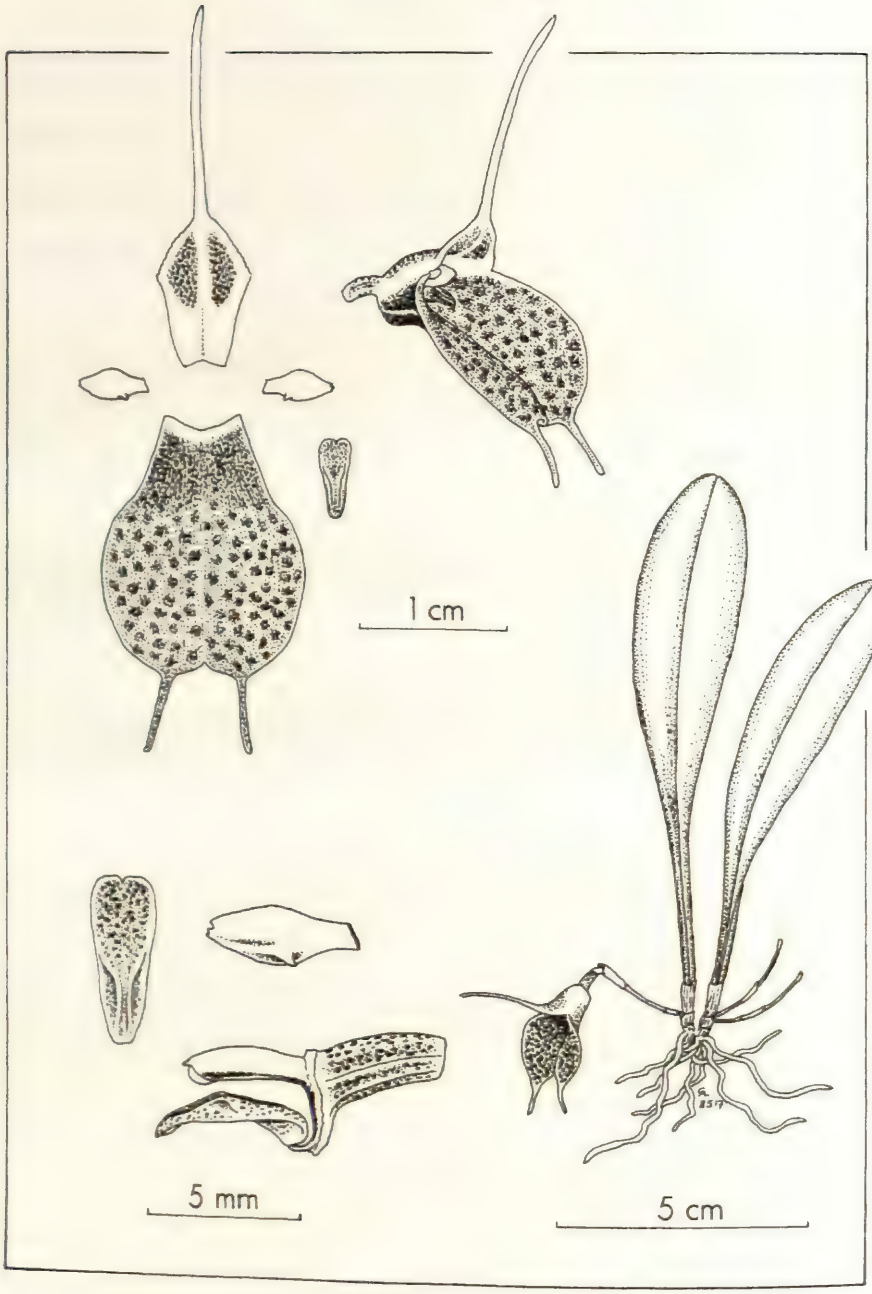


Plate 374. Masdevallia floribunda
(*M. tuerckheimii*)

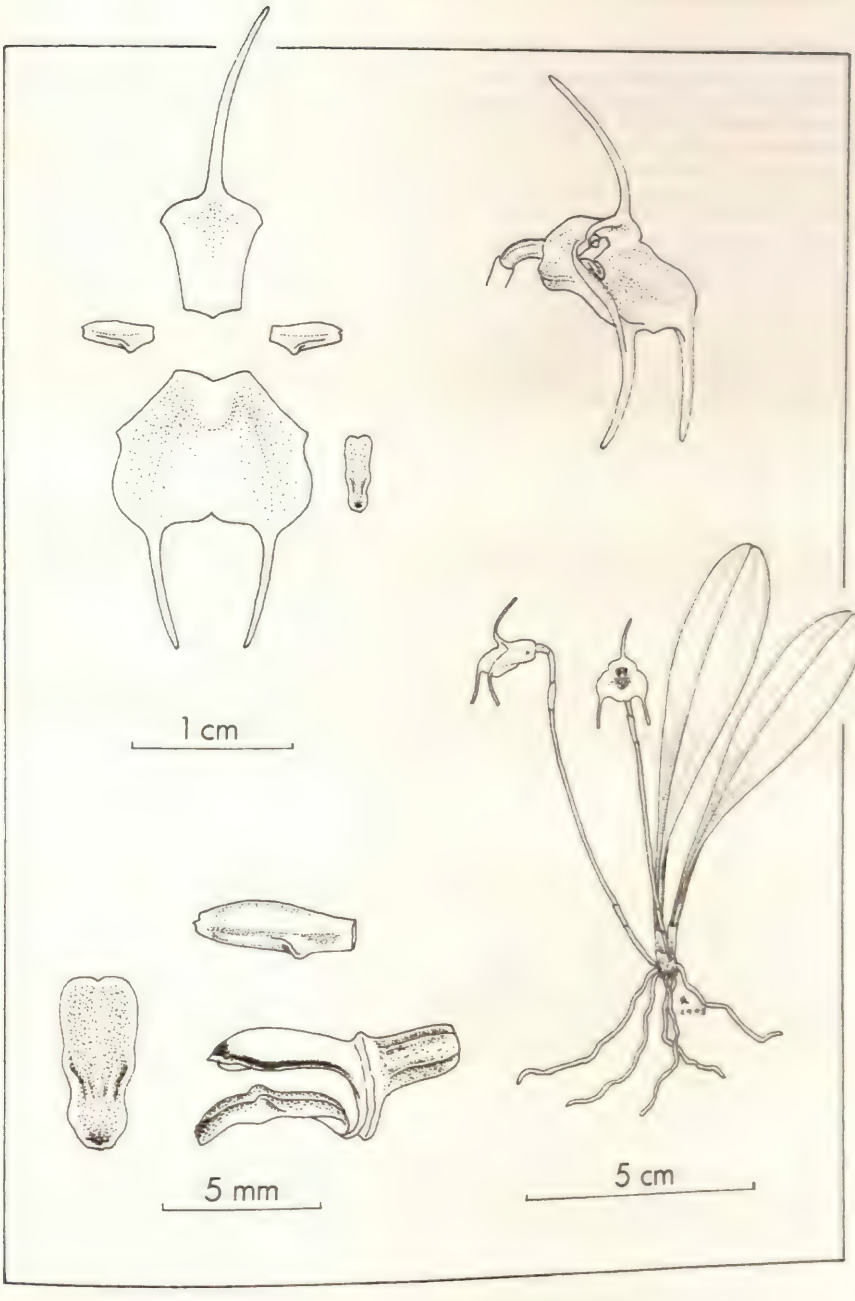


Plate 376. Masdevallia floribunda
(*M. lindeniana*)

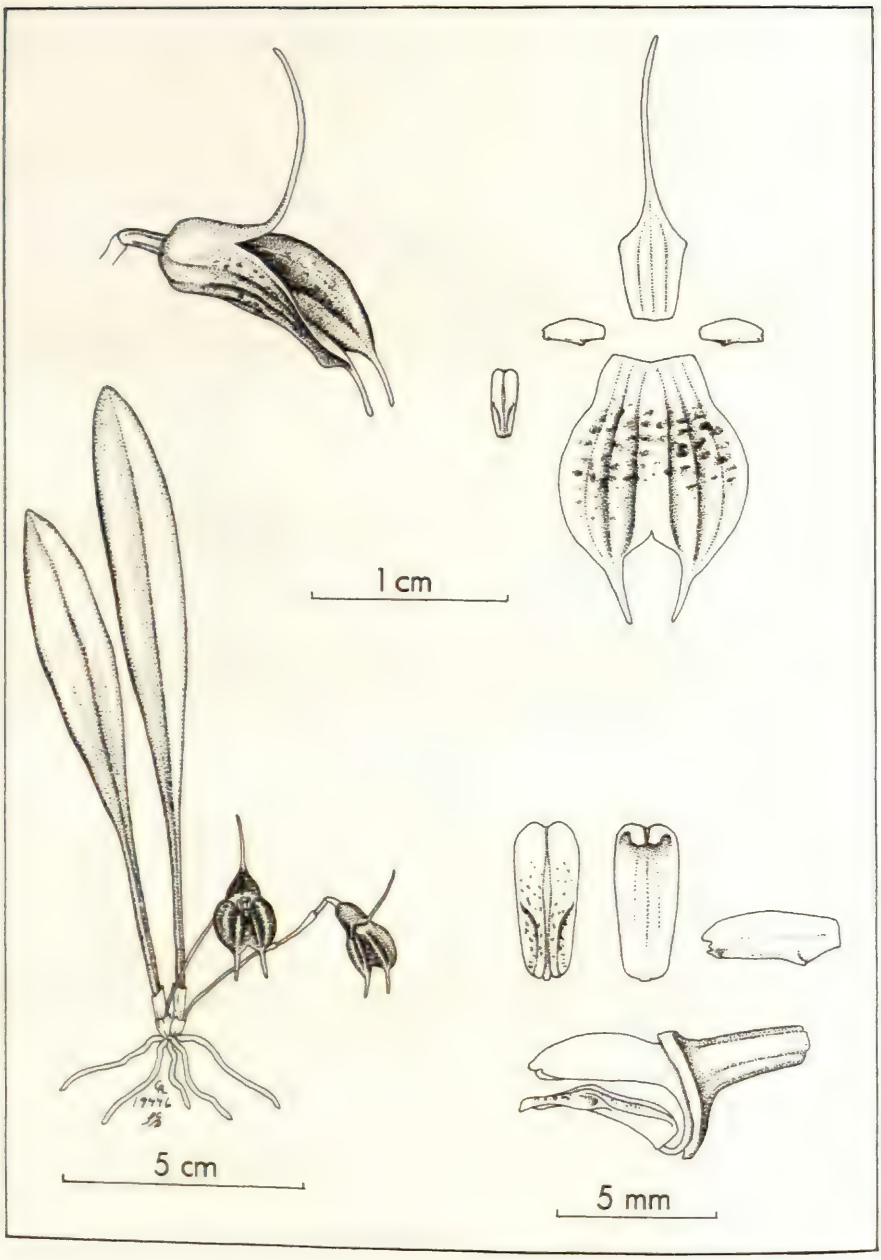


Plate 375. Masdevallia floribunda
(*M. tuerckheimii*)

Masdevallia geminiflora P. Ortiz, Orquideología 14: 226, 1981.

Ety.: From the Latin *geminiflorus*, "twin-flowered," referring to the simultaneously two-flowered inflorescence.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 0.5-1 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 4-6 cm long including an indistinct petiole 1-1.5 cm long, the blade narrowly elliptical, subacute, 0.7-1 cm wide, gradually narrowed below to the subpetiolate base. **Inflorescence** a simultaneously 2-flowered, congested raceme, occasionally 1-flowered, borne by an erect peduncle 5-7 cm long, round in cross-section, with a bract above the base, from low on the ramicaul; floral bracts tubular, imbricating, 5-8 mm long; pedicel 5-7 mm long; ovary 2-4 mm long, low-carinate; **sepals** pale yellow to white, glabrous, the dorsal sepal obovate, 12 mm long, 5.5-6.5 mm wide, connate to the lateral sepals for 9-10 mm to form a conical sepaline tube, the free portion broadly triangular, the obtuse apex contracted into a yellow, antrorse tail 12-15 mm long, the lateral sepals white or with scattered, pale orange-brown spots, obovate, 16 mm long, connate 10-12 mm into a broad lamina 13-14 mm wide expanded, the free portions obliquely ovate, the obtuse apices produced into yellow tails 9-10 mm long; **petals** white, oblong, 4-4.5 mm long, 1.5 mm wide, the apex obtuse, unequally bilobulate, the labellar half with a thin, longitudinal callus ending in a minute, erect, acute tooth in the lower third; **lip** white, oblong-pandurate, 4-4.5 mm long, 1.5-2 mm wide above a medial constriction, the apex subacute to obtuse, with minutely erose margins, the disc with a pair of obtuse, lamellate calli near the middle, the base subcordate, hinged beneath; **column** white, semiterete, 3.5 mm long, the foot 1 mm long, with a short, incurved extension.

COLOMBIA: **Valle del Cauca**: epiphytic in forest near the Calima dam, alt. 1500 m, *P. Ortiz 607* (Holotype: COL); same locality, March 1979, *P. Ortiz 4359* (JAUM, SEL), cultivated by R. Escobar, C. Luer illustr. 6436; same locality, cultivated Jan. 1981, *P. Ortiz 4392* (Herb. Ortiz, SEL); Represa de Calima, Río Bravo, alt. 1500 m, collected by M. Robledo, cultivated at La Ceja, 9 Apr. 1988, *C. Luer 13107* (MO); between Palmira and Taco, Río Bolo, alt. 1600-1800 m, cultivated by Amalia Lehmann de Sarria in Popayan, 21 Oct. 1982, *C. Luer 8175* (SEL). **Antioquia**: Parqué Nacional Natural "Las Orquídeas" Sector Calles, Río Calles, alt. 1280-1320 m, 2 June 1988, *A. Cogollo & J.P. Ramírez 3166* (JAUM, MO). Without locality, *F.C. Lehmann 1060* (LE). ECUADOR: **Esmeraldas**: Quininde Canton, Mache-Chindul Ecological Reserve, Bilsa Biological Station, west of Santa Isabel, alt. 500 m, 22 Oct. 1996, *J.L. Clark 3071* (MO, QCNE); same area, Loma de los Cuerrilleros, west of Quinindé, alt. 700 m, 18 Mar. 1997, *J.L. Clark 4038* (NO, QCNE). **El Oro**: epiphytic, cloud forest between Piñas and Sta. Rosa, alt. 800 m, 9 Oct. 1979, *C.H. Dodson et al. 9203* (SEL).

This comparatively rare, close relative of the common Central American *M. chontalensis* occurs in wet forests at relatively low altitudes in the Western Cordillera of Colombia and western Ecuador. It was first discovered by Padre Pedro Ortiz Valdivieso, S.J., of the Universidad Javeriana in Bogotá, Colombia. By coincidence, the epithet "geminiflora" had been inscribed on a description and illustration by Endres for *M. chontalensis* about 1867.

The simultaneous pair of pale yellow flowers with faint orange-brown spots, and borne by a terete peduncle are characters that distinguish this species. It is similar to *M. chontalensis*, but distinguished from the latter by slightly larger flowers; sepals with longer, more slender tails; petals with the apex rounded and obscurely bilobed; and a lip with prominent lamellate calli beyond which the lip becomes dilated toward the tip. The faint orange suffusion seen in the sepals of plants from Colombia is not present in the plants from Ecuador, which causes the white flowers to resemble *M. chontalensis*.

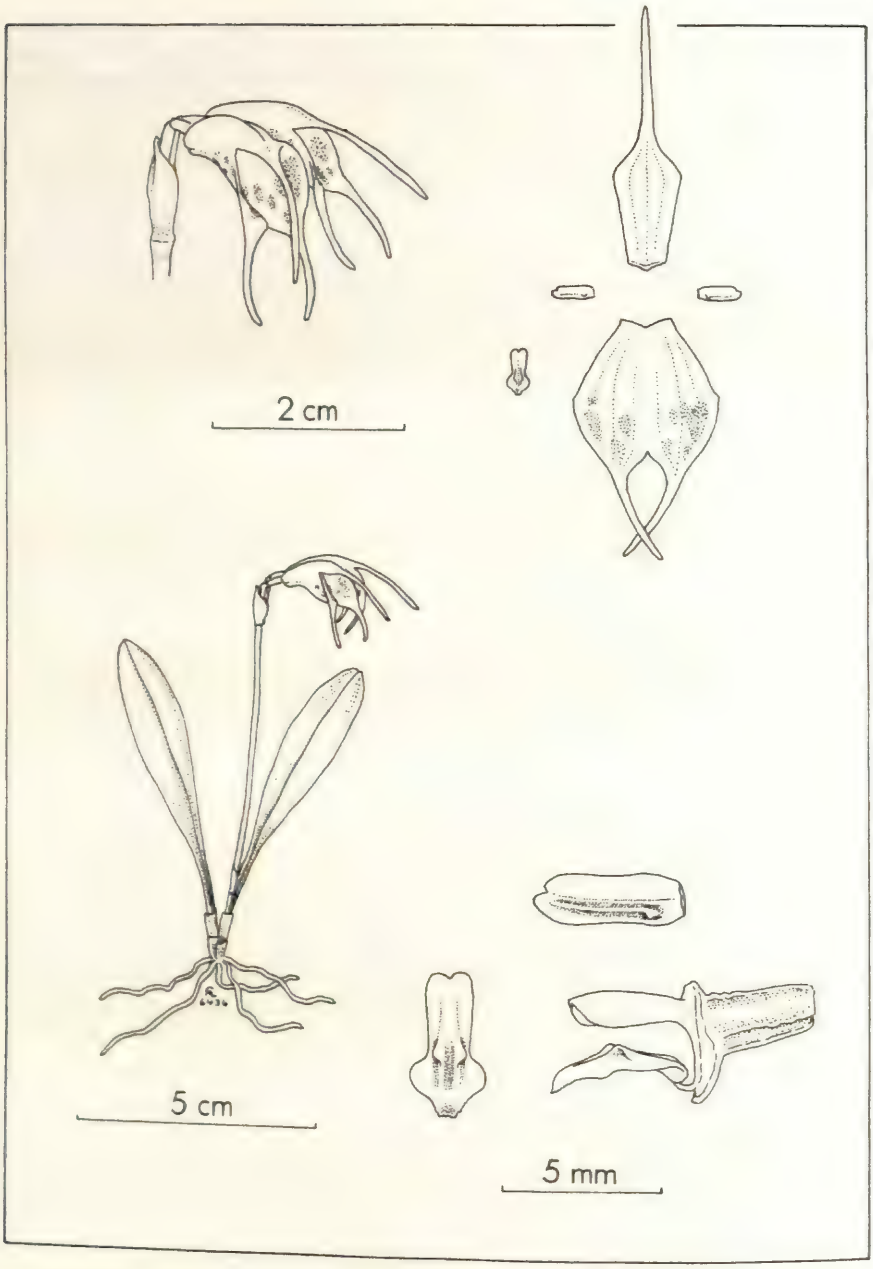


Plate 377. Masdevallia geminiflora

Masdevallia gutierrezii Luer, Phytologia 42: 461, 1979.

Ety.: Named in honor of Jorge Gutierrez of Santa Cruz, Bolivia, co-discoverer of this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-1.5 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, 4-6.5 cm long including the petiole ca. 1 cm long, the blade narrowly obovate, obtuse, 5-9 mm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a solitary, white flower borne by a slender, erect peduncle 6-10 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 5-7 mm long; pedicel 8-12 mm long; ovary greenish white, 2-4 mm long; **sepals** white, glabrous externally, the dorsal sepal oblong-ovate, 8 mm long, 2-3 mm wide, connate to the lateral sepals for 6-7 mm to form a cylindrical, sepaline tube, the apex gradually contracted into a suberect, white tail 10-12 mm long, the lateral sepals oblong, oblique, connate 6 mm into an oblong lamina ca. 10 long, 4-6 mm wide, forming a shallow mentum with the column-foot, the apices gradually narrowed into tails similar to that of the dorsal sepal; **petals** white, oblong, 3-4 mm long, 1.5 mm wide, the apex tridentate, the middle tooth the longest, the labellar margin with a low, longitudinal carina, produced into a short, pointed process between the middle and lower thirds; **lip** white, oblong, 4 mm long, 1.5 mm wide, the apex yellow, obtuse, microscopically verrucose, the disc with a pair of low, marginal folds near the middle, the base subcordate, hinged beneath; **column** white, semiterete, 3.5-4 mm long, the foot 1.5 mm long with a short, incurved extension.

BOLIVIA: **Santa Cruz**: epiphytic in seasonally dry forest near Caranda, 50 Km northwest of Santa Cruz, alt. 500 m, collected by L. Moreno & J. Gutierrez, cultivated by J & L Orchids, Easton, CT., 25 Nov. 1978, *C. Luer 3623* (Holotype: SEL); same collection, cultivated by W. Königer in Munich, Germany, 25 Oct. 1985, *C. Luer 11449* (MO); Velasco, Serrania de Huauchaea, alt. 600 m, 3 Feb. 1988, *R. Vásquez, L. Moreno & O. Moreno s.n.* (MO).

This small, white-flowered species is most similar to *M. minuta*, which also is known from the northern lowlands of Amazonian Bolivia. *Masdevallia gutierrezii*, apparently endemic in central Bolivia, was first collected in the seasonally dry forests surrounding Santa Cruz by Dr. Luis Moreno and Jorge Gutierrez, both of Santa Cruz, Bolivia.

The species is distinguished from *M. minuta* by the longer leaves, longer peduncles and larger flowers with a longer sepaline tube. The petals and lip of the two species hidden within the sepaline tube are very similar.

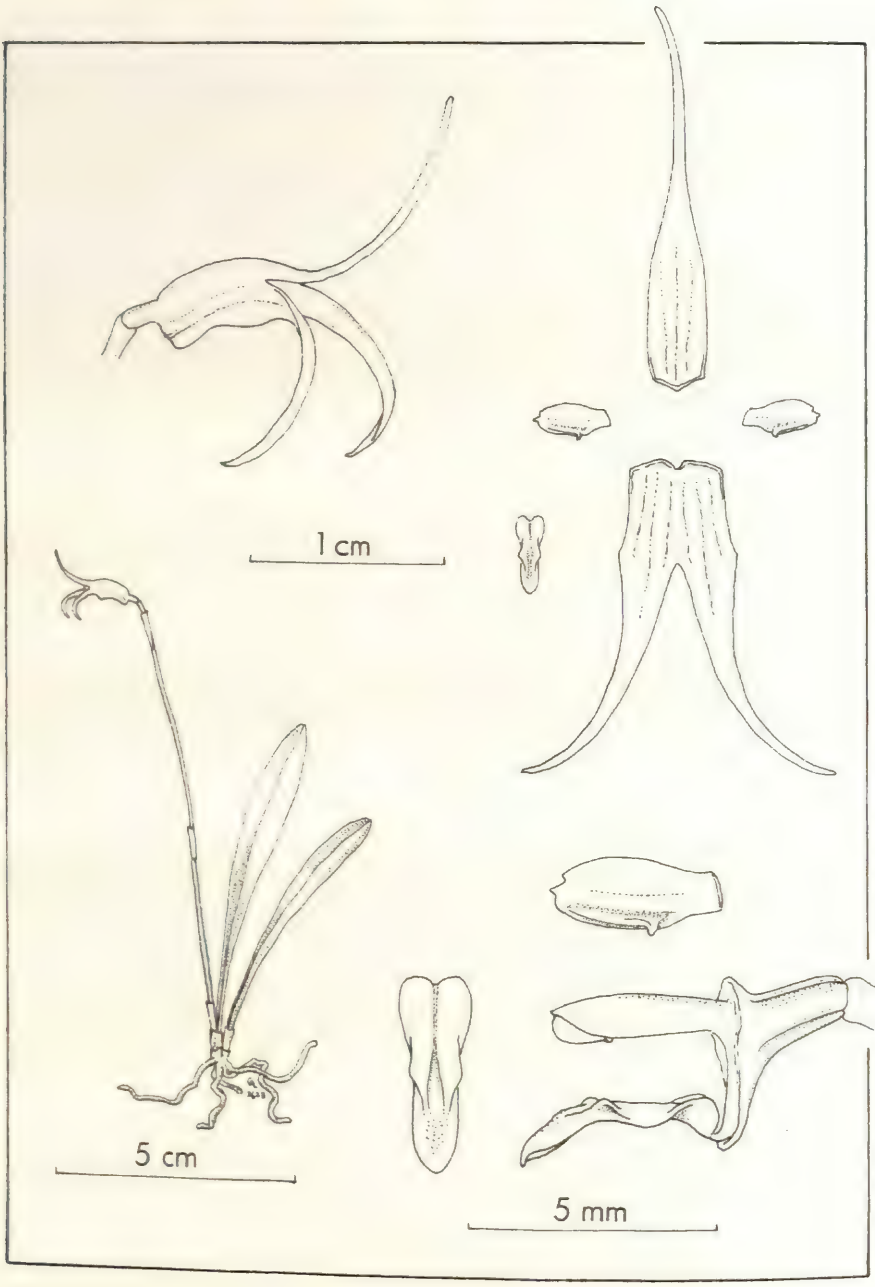


Plate 378. Masdevallia gutierrezii

Masdevallia herradurae Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 455, 1899.

Ety.: Named for the vicinity of Río Herradura (Spanish *herradura*, "horseshoe") near Frontino in the Western Central Cordillera of Colombia where the species was discovered.

Syn.: *Masdevallia tenuipes* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 81, 1920.
Ety.: From the Latin *tenuipes*, "thin-footed," referring to the short, slender peduncles.

Syn.: *Masdevallia frontinoënsis* Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 421, 1921.
Ety.: Named for the community of Frontino near where the species was collected.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, narrowly obovate, acute, 7-12 cm long including an indistinct petiole 2-4 cm long, 0.7-1.1 cm wide, gradually narrowed below into the indistinctly petiolate base. **Inflorescence** a single flower, usually produced in profusion, borne by a slender, erect to suberect peduncle, 2.5-4 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 6 mm long; pedicel 4-6 mm long; ovary 3 mm long; **sepals** a shade of purple or yellow, glabrous, the dorsal sepal oblong-obovate, 7-8 mm long, 3 mm wide, connate to the lateral sepals for 3-4 mm into a short, cylindrical tube, the free portion triangular, acute, contracted into an erect, slender tail ca. 2 cm long, the lateral sepals oblong-obovate, oblique, 8-9 mm long, 4.5 mm wide, connate 4 mm, the apices acute, contracted into tails similar to that of the dorsal sepal; **petals** greenish white, oblong, 4 mm long, 1.5 mm wide, the apex obtuse, apiculate, the labellar margin with a low, longitudinal callus ending in a short, subacute process between the middle and lower thirds; **lip** purple or yellow, oblong-obovate, 3.75 mm long, 1.75 mm wide, with obtuse marginal calli above the middle, the apex obtuse, the disc shallowly sulcate between a low, longitudinal pair of calli, the base subcordate, hinged beneath; **column** greenish white with the margin purple, semiterete, 3.5 mm long, the foot 2 mm long with a short, incurved extension.

COLOMBIA: **Antioquia**: along Río Herradura near Frontino, alt. 1400-1800 m, 30 Oct. 1884, *F. C. Lehmann 4139* (Holotype: K; Isotypes: AMES, G, NY, US); near Frontino, collector unknown, imported by *F. Sander s.n.* (holotype of *M. frontinoënsis*: W); Mutatá, alt, ca. 500 m, collected by E. Acevedo, 1978, cultivated by M. & O. Robledo at La Ceja, Apr. 1981, *R. Escobar s.n.* (SEL); Santo Domingo, Río Medellín, alt. 700 m, collected by V. Giraldo et al., Nov. 1971, cultivated by L.C. Vieira in Medellín, May 1981, *R. Escobar s.n.* (SEL); Porce, Río Medellín, alt. 400 m, collected by M. Arango, cultivated at Colomborquídeas, 5 May 1993, *C. Luer 16708* (MO). **Risaralda**: Mt. Tatamá north of Pueblo Rico, Apr. 1972, cultivated in Livonia, MI, 2 Nov. 1976, by *R. McCullough 1939* (SEL), C. Luer illustr. 1090C; Apia, alt. 800 m, collected by J.M. Serna, cultivated at Colomborquídeas, May 1980, *R. Escobar s.n.* (SEL). "Cauca:" without locality, *M. Madero s.n.* (holotype of *M. tenuipes* destroyed at B).

This species is relatively frequent in the Western Cordillera and the Central Cordillera of Colombia. It was described from one of the many collections of F.C. Lehmann. Although small, the plants usually produce an abundance of small, proportionately long-tailed flowers on short peduncles. The flowers are most commonly dark purple, but yellow forms occur. The slender sepals are free beyond the tube; the petals possess a small, pointed process on the margin of the lower third; and the lip possesses a pair of oblique, marginal calli above the middle.

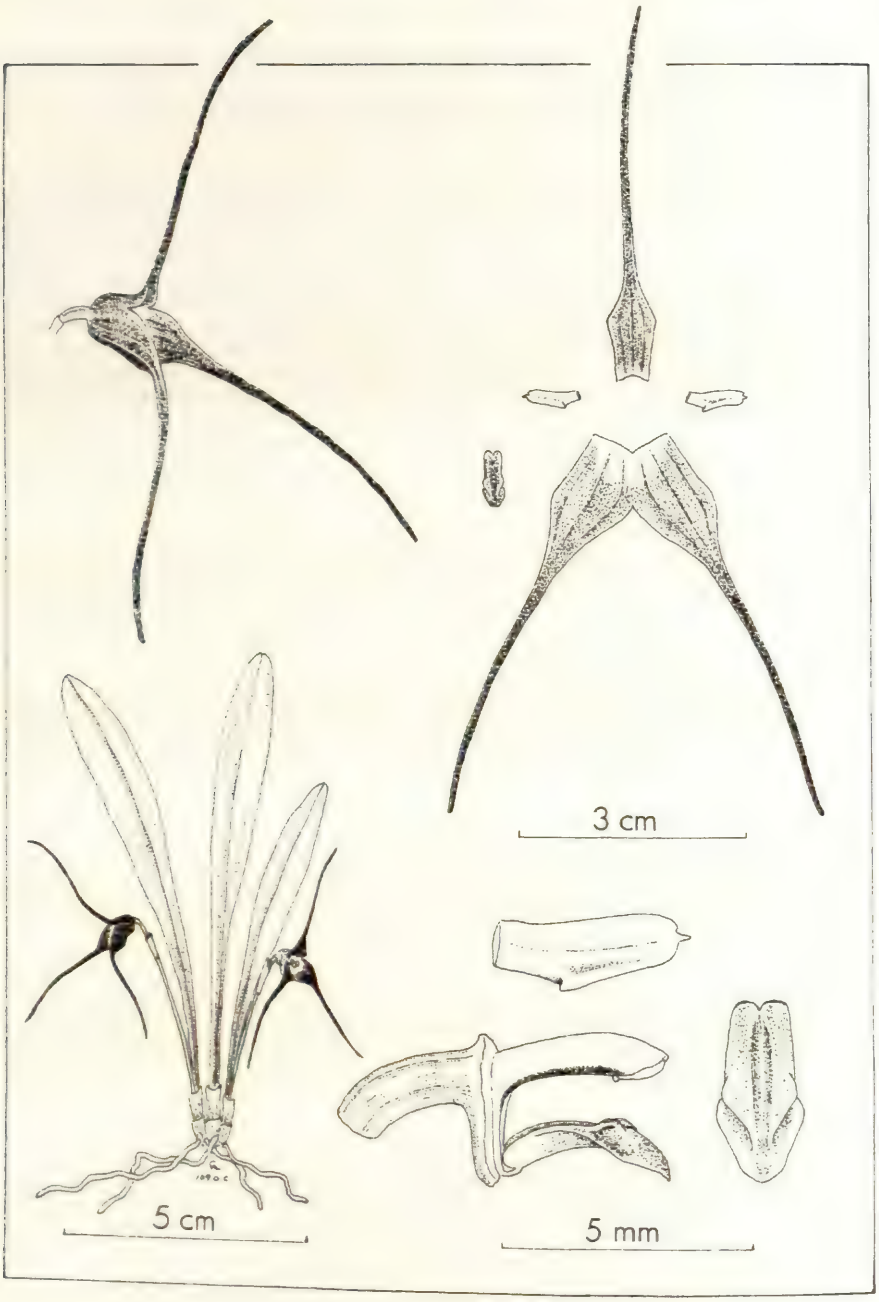


Plate 379. Masdevallia herradurae

Masdevallia laucheana Kraenzl., Gard. World 11: 134, 1894, nomen; et in Woolward, Monogr. Genus *Masdevallia* t. 19, 1896.

Ety.: Named in honor of Herr Lauche of Eisgrub, Austria, a friend of Kränzlin.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 7-14 cm long including the petiole 2-4 cm long, the blade narrowly elliptical-obovate, subacute to obtuse, 1.3-2.1 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a solitary flower, borne by a slender, suberect peduncle 4-6 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 7-9 mm long; pedicel 11-25 mm long; ovary green, 4-5 mm long; **sepals** white, occasionally partially marked with purple along the veins, glabrous, the dorsal sepal obovate, 8-9 mm long, 7 mm wide, connate to the lateral sepals for 6 mm to form a campanulate, sepaline tube, the free portion obtuse, contracted into a comparatively stout, reflexed, orange tail 2.5-3 cm long, 1.25 mm thick, the lateral sepals ovate, oblique, obovate, 13-14 mm long, 8-9 mm wide, connate 8-9 mm to form a small mentum below the column-foot and a broad, shallow, secondary mentum, the free portions obtuse to rounded, contracted into decurved tails similar to that of the dorsal sepal; **petals** white, ovate-triangular, acute, shortly ungulate, 5-5.5 mm long, 2-2.5 mm wide, with a longitudinal carina above the labellar margin ending in an acute process or tooth above the angle at the claw; **lip** greenish or yellowish, oblong-ligulate, 6 mm long, 2.5 mm wide, the apex narrowly obtuse, minutely denticulate, concave centrally with a minutely verrucose, purplish callus in the center of the concavity, more or less protuberant beneath, the disc elevated by a pair of longitudinal carinae with obtuse angles near the middle, the base subcordate, hinged beneath; **column** white with a purple margin, semiterete, 5 mm long, the foot 2.5 mm long, with a very short, incurved extension.

COSTA RICA: **San José**: epiphytic in forest ca. 10 Km south of San José, alt. 1500 m, collected by L. Glicenstein, 5 Jan. 1978, cultivated at J & L Orchids, Easton, CT, 10 Oct. 1988, *C. Luer 13755* (Neotype: MO: Isotype: Herb. H. Königer). **Cartago**: Cachi, 27 Sept. 1927, *C.H. Lankester 1060* (AMES). Without locality or collector, cultivated by D. Richardson 1366, 15 Nov. 1977, *C. Luer 2197* (SEL); without locality or collector, obtained from R. Brockmüller, cultivated by W. Königer in Munich, Germany, 14 Oct. 1986, *C. Luer 11613* (MO).

Although easily recognized, this species is closely allied to *M. attenuata*, also from Costa Rica. In appearance the two species are very similar. The flowers are about the same in size and color, but the conical sepaline tube of *M. laucheana* is broadly dilated above the middle into a secondary mentum, and it is only occasionally partially marked with purple along the veins. The sepaline tube of *M. attenuata* is narrowly cylindrical without a broad, secondary mentum, and usually with longitudinal purple stripes along the veins. The tails of both species are orange, but those of *M. laucheana* are noticeably thicker and brighter orange. Here all dissimilarities cease. The petals, lip and column are essentially identical in both species. Some clones of *M. laucheana* emit a pleasant fragrance not present in *M. attenuata*.

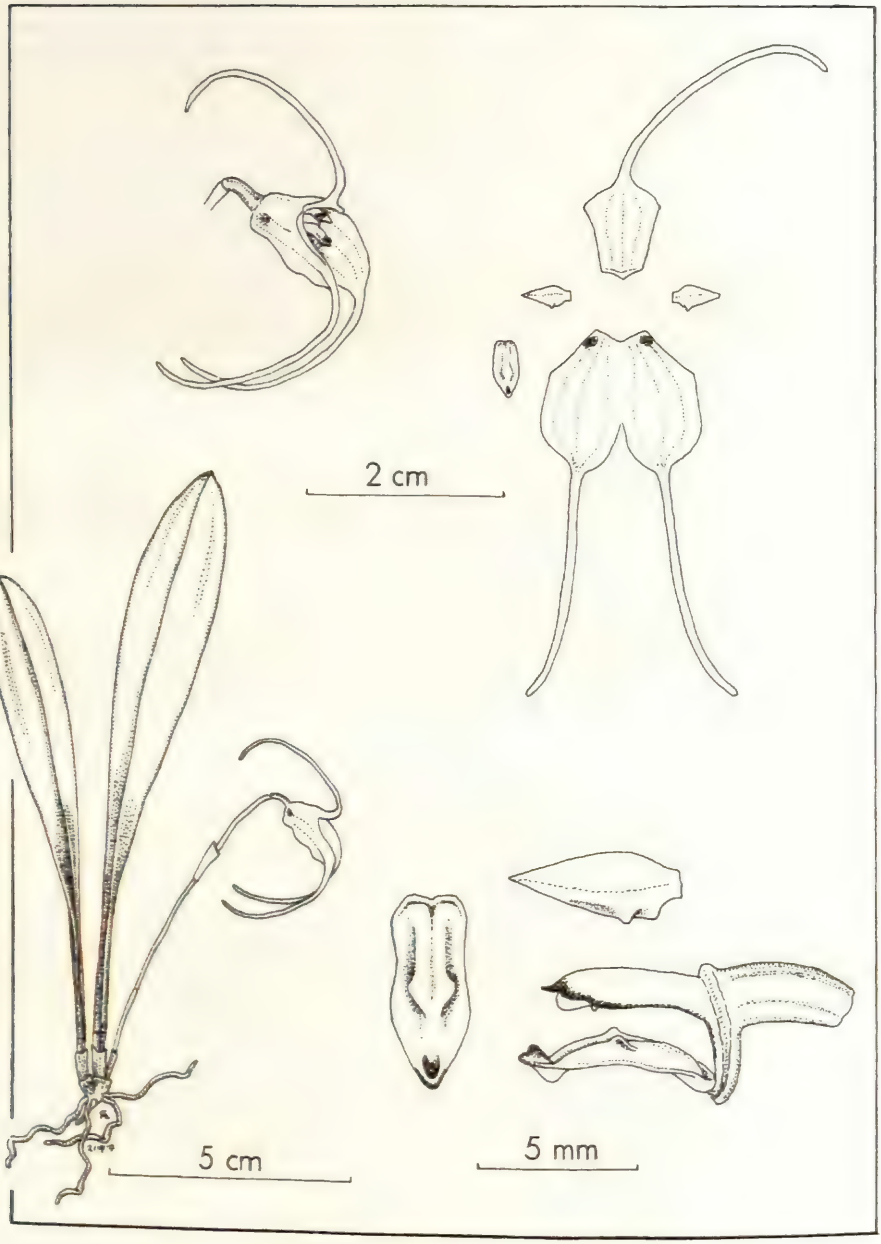


Plate 380. Masdevallia laucheana

Masdevallia livingstoneana Rchb.f. & Roezl, Gard. Chron. n.s. 2: 322, 1874, emend. Gard. Chron. n.s. 4: 290, 1875.

Ety.: At the request of Benedict Roezl, Reichenbach named this species in honor of David Livingstone (1813-1873), Scottish explorer popularized at that time through his rescue in Africa by the British explorer Sir Henry Morgan Stanley.

Syn. *Scaphosepalum panamense* Schltr., Repert. Spec. Nov. Regni Veg. 12: 205, 1913.
Ety.: Named for Panama, the country of origin of the specimen.

Syn: *Masdevallia livingstoneana* Schltr. sensu Ames, Repert. Spec. Nov. Regni Veg. Beih. 17: 15, 1922, emend. Sched. Orchid. 5: 9, 1923, non Rchb.f. & Roezl.

Syn.: *Masdevallia panamensis* (Schltr.) Ames, Sched. Orchid. 4: 9, 1923.

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls erect, 0.5-1.5 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect, rather thickly coriaceous, 6-12 cm long including an ill-defined petiole 1-3 cm long, the blade narrowly elliptical-obovate, 1-1.8 cm wide, the apex obtuse to rounded, gradually narrowed below into the base. **Inflorescence** a solitary showy flower, often followed by a second flower, borne by a suberect to erect peduncle 4-6 cm long, with a tubular bract above the base, from low on the ramicaul; floral bract tubular, 6-7 mm long; pedicel 15-20 mm long; ovary 6 mm long; **sepals** fleshy, yellowish white or greenish white, suffused with light purple-brown on the free, apical portions, suffused with dark red-purple between the middle and lower thirds just within the orifice of the tube, glabrous externally, minutely pubescent within near the middle around the orifice of the tube, the dorsal sepal more or less oblong, 25 mm long, 4.5 mm wide at the junction with the lateral sepals, connate 9 mm to the lateral sepals to form a lightly curved, cylindrical, sepaline tube, the free portion recurved, linear-oblong, 16 mm long, with revolute margins, narrowly obtuse, the lateral sepals oblong-falcate, 18 mm long, connate 7 mm, the free portions triangular, acute, 7-8 mm wide, with lightly recurved margins; **petals** white, oblong, obtuse, 5 mm long, 1.5 mm wide, the labellar half with a low, longitudinal carina ending in a short, acute tooth between the middle and lower thirds; **lip** diffusely flecked with purple on white, suffused with yellow at the apex and base, oblong-subpandurate, 5 mm long, 1.5 mm wide, the apex obtuse, the disc with a low pair of converging calli above the middle, the base subtruncate-retuse, hinged below; **column** white, semiterete, 4.5 mm long, the foot 2 mm long with a slender, incurved extension.

PANAMA: **Panama**: presumably near Culebra (future Canal Zone), autumn 1873, *B. Roezl 74* (Holotype: W); cultivated for Prince Egon von Fürstenberg, Donaueschingen, Baden, 1874, by *Hofgartner Kirchhoff s.n.* (W); Canal Zone, in forests along Río Indio de Gatun, near sea level, Feb. 1911, *H. Pittier 2803* (holotype of *S. panamense*: destroyed at B); foothills east of Panama City, alt. 100-150 ft., Feb. 1919, *C.W. Powell 78* (AMES); foothills west of Panama City, near Arraijan, alt. 100 ft., 1921, *C.W. Powell 273* (AMES, BM, K, MO, S); San Juan, upper Chagres, near sea level, *C.W. Powell 411* (AMES); Barro Colorado Island, 13 Dec. 1935, *Zetek 6002* (MO); same area, Snyder-Molino Trail, 21 Feb. 1969, *T.B. Croat 8074* (MO); Río Mendoza, north of Gamboa, collected by R.L. Dressler and N.H. Williams, cultivated at SEL 3 Jan. 1979, *C. Luer 3650* (SEL). **Colón**: Santa Rita Ridge, 10 Feb. 1968, *R.L. Dressler 3374* (MO). **Los Santos**: Loma Prieta, Cerro Grande, alt. 2,400-2,800 ft., 8 June 1967, *W.H. Lewis et al. 2254* (MO). **Darién**: Río Jacque, Flat River flood plain, alt. 100 m, 29 Jan. 1982, *S. Knapp & J. Mallet 3215* (MO).
COSTA RICA: **Limón**: near Panamanian border, cultivated by A. Lepiz in Vancouver, B.C., 14 Apr. 1996, *C. Luer 17845* (MO).
COLOMBIA: **Chocó**: Near Madurex Logging Camp above Teresita and below the rapids on Río Truando, 7 Feb. 1967, *J.A. Duke 9911* (NY).

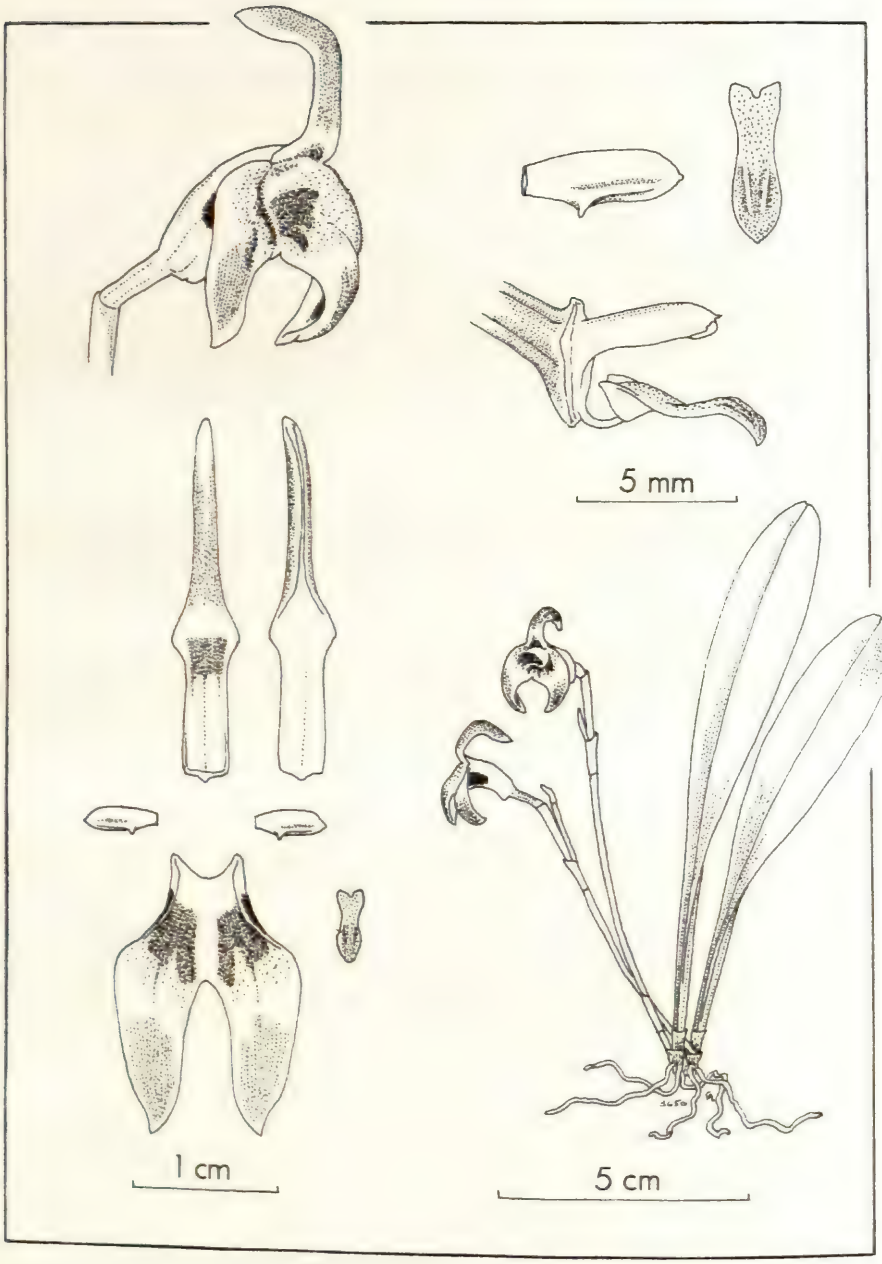


Plate 381. Masdevallia livingstoneana

Benedict Roezl first discovered this distinctive species in the path of the future Panama Canal. Only a few of the numerous plants he shipped to London survived to reach the auction house of F. Sander & Co. Reichenbach's scanty first description in 1874 was emended the following year when he received fresh flowers from the collection of Prince Egon von Fürstenberg. Apparently no plants of *M. livingstoneana* survived in cultivation in Europe. By 1896 Woolward had not had the opportunity to see the species; she excluded it from the genus, suggesting that it belonged to *Pleurothallis*.

Masdevallia livingstoneana was next discovered by Pittier in the Canal Zone in 1911 before the completion of the canal. His dried specimens were misinterpreted by Schlechter who described the species in the genus *Scaphosepalum*. Schlechter corrected his error in 1922 after he received more and better material from C.W. Powell of Balboa. The species had been known only from lowland, central Panama, but more recent collections extend the range to adjacent, Atlantic slopes of Costa Rica and neighboring Chocó of Colombia.

Masdevallia livingstoneana is easily identified by the broad sepals of the colorful flower. The free portions of the lateral sepals are subfalcate, while the free portion of the dorsal sepal is recurved.

5 cm
1 cm
5 mm
5 mm
2 cm
5 cm

Masdevallia minuta Lindl., Ann. Mag. Nat. Hist. 12: 396, 1843.

Ety.: From the Latin *minutus*, "very small," referring to the habit of the plant.

Syn.: *Masdevallia surinamensis* Focke, Tijdschr. Wis-Natuurk. Wetensch. 4: 62, 1851.

Ety.: Named for Suriname, the country of origin of the described specimen.

Plant small to very small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-15 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly obovate, subacute, 10-60 mm long, 2.5-6 mm wide, gradually narrowed below to the narrow, indistinctly petiolate base. **Inflorescence** a solitary flower borne by a slender, erect peduncle 15-60 cm long, with a bract below the middle, from low on the ramicaul; floral bract 5-10 mm long; pedicel 3-12 mm long; ovary 2.5-3 mm long; **sepals** white, glabrous, the dorsal sepal oblong, 6-12 mm long without the tail, 2-3 mm wide, connate 5-7 mm to the lateral sepals to form a slightly curved, cylindrical tube, the free portion more or less triangular, narrowed into a broad, terete, light yellow tail 4-7 mm long, the lateral sepals connate 4-5 mm into an oblong, bifid synsepal 8-10 mm long without the tails, 5-6 mm wide expanded, the acute apices narrowed into tails similar to that of the dorsal sepal; **petals** white, oblong, 3-3.75 mm long, 1-1.5 mm wide, the apex obtuse to subtruncate, obscurely 1- to 3-dentate, the labellar half with a longitudinal carina above the margin, terminating in a short, erect, acute tooth between the middle and lower thirds; **lip** white, suffused with yellow, sometimes mottled or dotted with purple, oblong, 3.25-4 mm long, 1-1.5 mm wide, the apex obtuse to rounded, minutely verrucose, the disc with a pair of low, longitudinal calli near the middle, the subcordate base hinged on the end to the column-foot; **column** greenish white, the margins sometimes edged in purple, semiterete, 3-3.5 mm long, the foot 1.5 mm long, with a short, incurved extension.

SURINAME: without locality, Mar. 1842, *O. Hostmann 151* (Holotype: K; Isotypes: BM, G, LE, W); near Paramaribo, 11 Mar. 1838, *Splittgerben 719* (W); without locality, Feb. 1844, *R.F. Hohenacker 333a* (S); on trunks of trees near Paramaribo, Feb.-Apr. 1844, *A. Kappler 1534* (BR, G, MO, P, W); Magdeburg, *Wullschlaegel 538* (holotype of *M. surinamensis*: W); Paramaribo, May 1846, *Kegel s.n.* (W); Magdeburg, *Surina 538* (BR); Jodensavanne-Mapane creek area, 23 June 1955, *J.P. Schluz 7224* (AMES); road to Patamaca, alt. 110 m, 13 Apr. 1976, *C.H. Dodson & J. Blaser 6033* (SEL); Saut Paloulou Icholi, Bassin de haut-Maroni, alt. 150 m, 18 Sept. 1994, *J.J. De Granville 12567* (CAY).

FRENCH GUAYANA: Saul-Tracé, Montagne La Fumée, 25 Apr. 1972, *B. de Granville 4384* (P); Fleuve Aprouague, Riv. Arataye, Sauts Parare, aly. 35 m, 15 Mar. 1981, *S. Barrier 2777* (P); Atachi Bacca Berge, Itany River, alt. 100 m, 31 Jan. 1989, *Leuenberger & Hagemann s.n.* (B); D.Z. de Saut Aïmara, Bassin du Sinnamary, alt. 30 m, 20 Mar. 1991, *M. Hoff 6940* (CAY); Roche Touatou, Bassin de L'Oyapock, alt. 120 m, 19 May, 1995, *G. Cremers & J.J. De Granville 14002* (CAY); Face nord de L'inselberg, alt. 220 m, 4 Apr. 1997, *G. Cremers & F. Crozier 14674* (CAY).

GUYANA: Cuyuni(?) River, May 1884, *G.S. Jenman 1959* (K).

BRAZIL: **Amazonas**: São Juaquin, Rio Negro, Jan. 1902, *E. Ule 6070* (BR, HBG).

VENEZUELA: as "M. lansbergii," without locality, *F.C. Freiberg 1352* (W).

COLOMBIA: Llanos of San Martín, June 1906, *Dawe 243* (K).

ECUADOR: **Napo**: Hollin Loreto, alt. 1000 m, Nov. 1988, *A. Hirtz 3920* (MO); Río Jatunyacu above Shandia, alt. 650 m, 12 Aug. 1991, *A. Hirtz & S. Ortega 5367* (MO).

PERU: **Junín**: near La Merced, alt. 800-1300 m, 1-3 June 1929, *E.P. Killip & A.C. Smith 23954* (AMES, G, K, MO, NY, S, US); Río Paucartambo, alt. 700 m, 19 June 1929, *E.P. Killip & A.C. Smith 24760, 25320* (US); Chanchamayo, collected by J. Meza, cultivated by W. Königer in Munich, Germany, 29

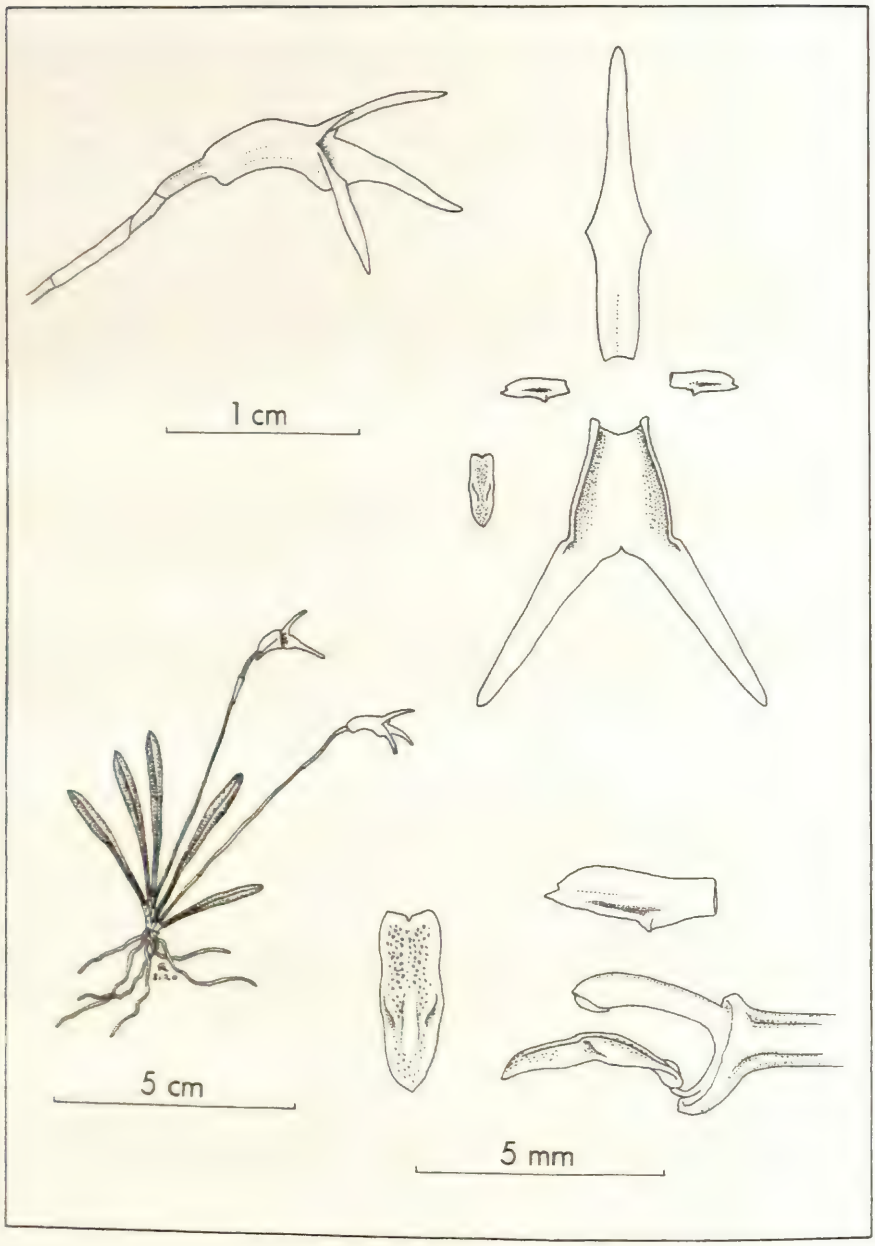


Plate 382. Masdevallia minuta

Aug. 1982, *C. Luer 8120* (SEL). **San Martín**: Zepelacio near Moyabamba, alt. 1100 m, May 1934, *G. Klug 3616* (AMES, K, MO, NY, S, US); Tarapoto north of Moyabamba, alt. 1000 m, collected by Fuchs, cultivated by W. Königer in Munich, Germany, 25 Oct. 1985, *C. Luer 11445* (MO); Lamas, Tangarana, alt. 700 m, 14 Aug. 1983, *W. Königer, H. Königer & M. Arias K-93a* (K, M, SEL, USM, W, Herb. H. Königer).
BOLIVIA: **Cochabamba**: Chapare, near Villa Tunari, alt. 500 m, Nov. 1978, *C. Luer, J. Luer et al. 4051* (SEL).

Splittgerben, collecting in what is now Suriname, was apparently the first of the early collectors to have collected this small species. An intended name written on the herbarium sheet at W is "Specklinia spathulata." From a collection by Hostmann in 1842 it was described by Lindley the following year. It is frequent and widely distributed in the extensive, contiguous forests of mountainous lowlands surrounding the Amazon basin from the Guyanas into Bolivia.

Masdevallia minuta is variable in size both vegetatively and florally. The peduncle may be shorter or longer than the leaves. The thick sepaline tails of the small, white flower are about as long as the blades; the petals possess a pointed callus between the middle and lower thirds; and a low pair of calli are present on the disc of the lip above the middle.

Masdevallia minuta, a single-flowered species of the section, appears similar to the species of section *Triotosiphon*, sometimes making a distinction difficult. The latter, however, lack the pointed callus of the petals.

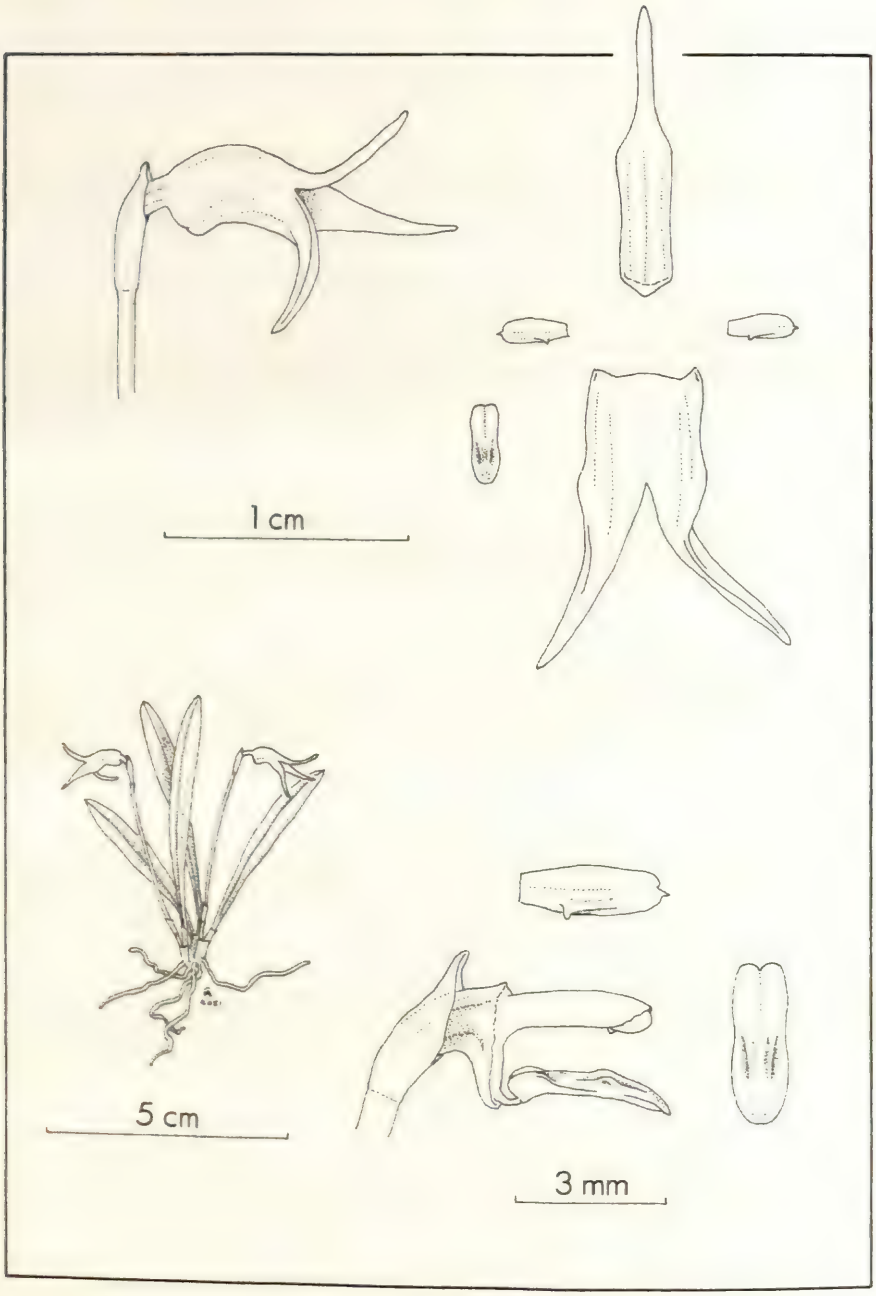


Plate 383. Masdevallia minuta

Masdevallia nicaraguae Luer, Selbyana 5: 148, 1979.

Ety.: Named for Nicaragua, the country of origin.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, 1-1.5 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, 6-11 cm long including the petiole 2-4 cm long, the blade narrowly obovate, obtuse, 1.4-1.7 cm wide, gradually narrowed below into the slender petiole. **Inflorescence** a solitary flower borne by an erect to suberect, slender peduncle 4-6.5 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 5-6 mm long; pedicel 10-14 mm long; ovary green, 6-8 mm long; **sepals** snow white, faintly suffused with rose within toward the base, glabrous, the dorsal sepal veined in rose within, oblong, 13 mm long, 5 mm wide expanded, connate to the lateral sepals for 11-12 mm to form a cylindrical tube, the triangular free portion obtuse, contracted into an erect, thick, greenish white tail 12 mm long, the lateral sepals 21-23 mm long, connate 14 mm into a bifid, more or less obovate synsepal 12-15 mm wide, broadly dilated above the union with the dorsal sepal, the free portions triangular, diverging, deflexed, contracted into thick, greenish white, triangular tails ca, 4 mm long; **petals** white, oblong, 5 mm long, 1.5 mm wide, the obtuse apex obscurely apiculate, the labellar margin with a low, longitudinal callus ending in an obtuse angle below the middle; **lip** white with purple specks, oblong-ligulate, 5 mm long, 1.5 mm wide, the apex subacute, yellow, with minutely erose margins, the disc with a pair of longitudinal calli above the middle, the base truncate, hinged beneath; **column** white, semiterete, 4 mm long, the foot thick, 2 mm long, with an incurved extension.

NICARAGUA: **Chontales**: near Santo Tomas, alt. 200-500 m, 11 Jan. 1974, collected by J. Atwood s.n., cultivated by J & L Orchids, Easton, CT, 7 November 1977, *C. Luer 2118* (Holotype: SEL); route 7, Santo Tomas, alt. 200-500 m, 11 Jan. 1974, *Atwood & Neill 7027* (AMES, MO, SEL). **Zelaya**: Colonia Kururia, alt. 50 m, *Pipoly 3888 & 3928* (MO).

This species was first discovered by Dr. John Atwood while collecting orchids in Nicaragua. Plants of this species were obtained by J & L Orchids, but an error was made in the collection data. Volcán Mombacho in the department of Granada was given in the original description as the locality, but Dr. Atwood's memory and records suggest that it was collected at a low altitude near Santo Tomas in the department of Chontales.

The snow white-flowered *Masdevallia nicaraguae*, apparently endemic in Nicaragua, is allied to *M. floribunda* Lindl. from farther north, and to *M. tubuliflora* Ames, also from Nicaragua, but not from the same localities. From the former, *M. nicaraguae* is distinguished by the thick sepaline tails, especially those of the lateral sepals that are short, triangular and diverging. From the latter, *M. nicaraguae* is distinguished by the larger, pure white flowers, the erect tail of the dorsal sepal, and the broadly dilated lateral sepals above the sepaline tube.

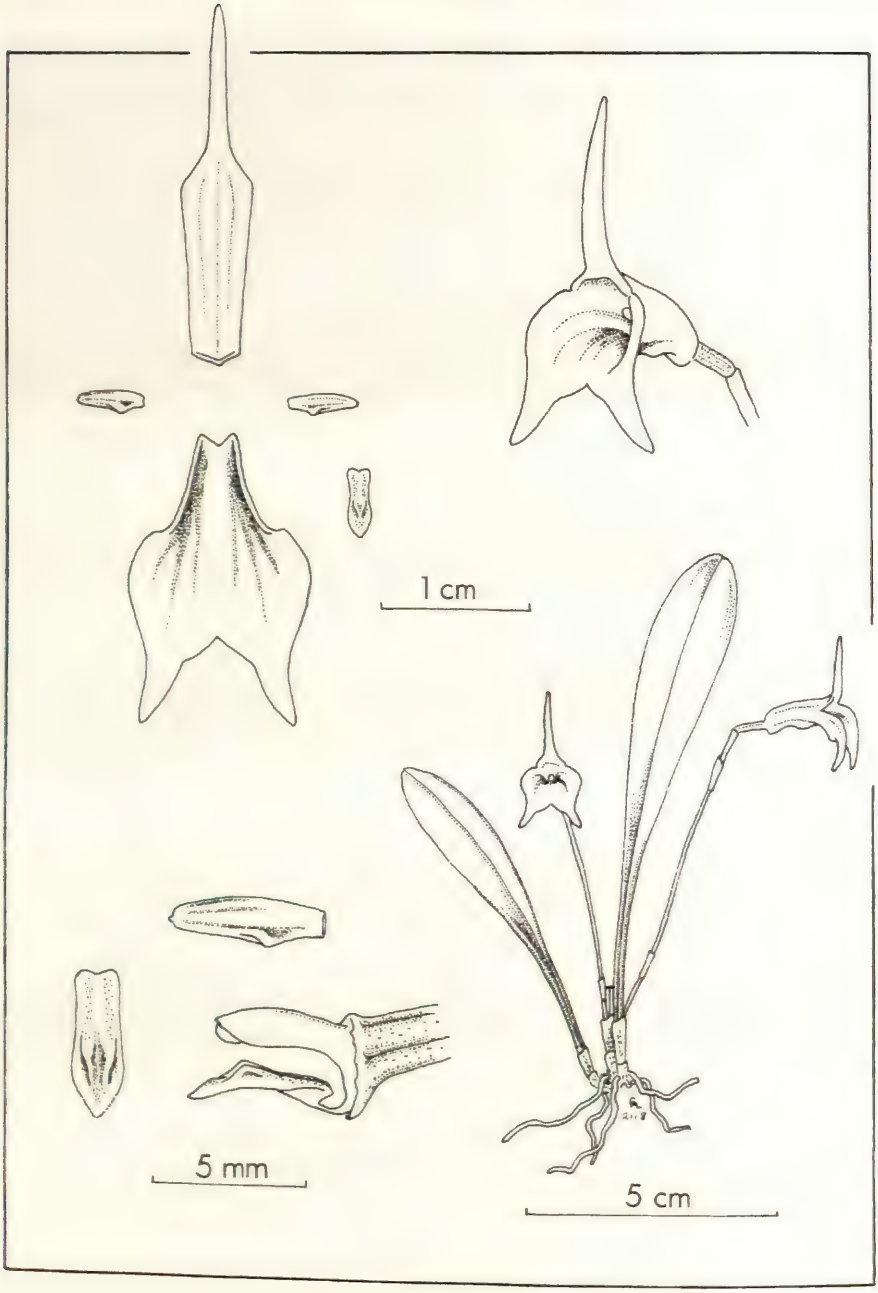


Plate 384. Masdevallia nicaraguae

Masdevallia pescadoënsis Luer & Escobar, Orquideología 13: 179, 1979.

Ety.: Named for "El Pescado," Río Cocorná, where the species was discovered.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-1.5 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect, coriaceous, 10-15 cm long including the petiole 3-6 cm long, the blade narrowly obovate, subacute to obtuse, 1.5-2.5 cm wide, gradually narrowed below into the indistinctly petiolate base. **Inflorescence** a single flower, sometimes followed by a second flower, borne by a slender, erect to suberect peduncle, 4-6 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 5-6 mm long; pedicel 10-16 mm long; ovary white, subverrucose, 7-10 mm long; **sepals** light green, glabrous, the dorsal sepal obovate, 7-12 mm long, 4-6 mm wide, connate to the lateral sepals for 5-7 mm into a cylindrical, sepaline tube, the free portion triangular with the apex acute, contracted into a comparatively thick, suberect, greenish white tail 18-25 mm long, the lateral sepals suffused with light brown below the middle, narrowly ovate, oblique, ca. 17 mm long, 5 mm wide, connate 4-5 mm, the apices attenuated into tails similar to that of the dorsal sepal; **petals** white, oblong, 5 mm long, 1.5 mm wide, narrowed toward the truncate apex with an apiculum, the labellar margin with a longitudinal carina, ending in a short, acute process between the middle and lower thirds; **lip** white, minutely flecked with purple, oblong, 4-5 mm long, 1.5-2 mm wide, the apex obtuse, minutely erose and minutely papillose, with a small, dark purple callus near the margin, the disc shallowly sulcate between a longitudinal pair of oblique, verrucose calli near the middle, the base subcordate, hinged beneath; **column** white, suffused with rose, semiterete, 3.5 mm long, the foot 1 mm long with a short, incurved extension.

COLOMBIA: **Antioquia**: Cocorná, "El Pescado," Río Cocorná, alt. 600-800 m, 10 Sept. 1976, collected by G. Misas & L. Vieira, cultivated by Vieira in Medellín, 1 Oct. 1977, *R. Escobar 1092* (Holotype: JAUM; Isotype: SEL), C. Luer illustr. 1880.

This species, apparently endemic in the northern part of the Central Cordillera of Colombia at a low altitude, is related to some Central American species such as *M. attenuata*. Vegetatively and florally, it is similar, but *M. pescadoënsis* is distinguished by shorter peduncles, and a larger flower with light green sepals, free beyond the sepaline tube, suffused with brown below the middle and with comparatively thick tails. The petals possess an acute tooth between the middle and lower thirds, and the lip possesses a pair of oblique calli above the middle.

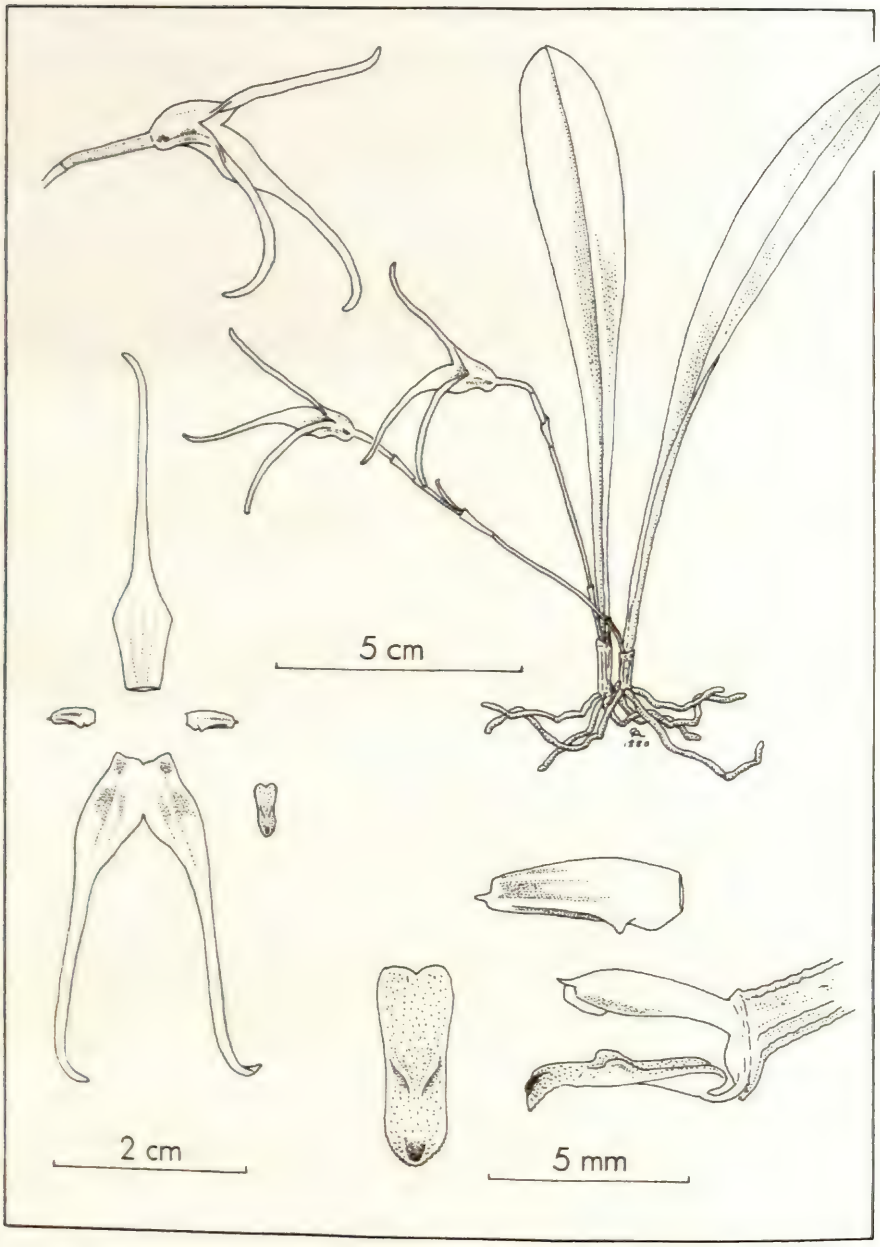


Plate 385. Masdevallia pescadoënsis

Masdevallia scabrilinguis Luer, Phytologia 44: 168, 1979.

Ety.: From the Latin *scabrilinguis*, "with rough tongue," referring to the labellum.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-1.5 cm long, enclosed by 2-3 thin, close, tubular sheaths. **Leaf** erect to suberect, coriaceous, narrowly obovate, subacute to obtuse, 6-10 cm long including an indistinct petiole 0.5-2 cm long, 0.9-1.2 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a single flower, sometimes followed by a second flower, borne by a slender, erect to suberect peduncle, 4-8 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 5 mm long; pedicel 9 mm long; ovary 4 mm long; **sepals** white, glabrous (microscopically pubescent) within, the dorsal sepal obovate-oblong, 10 mm long, 4-5 mm wide, connate to the lateral sepals for 6 mm into a cylindrical tube, the free portion triangular with the apex acute, contracted into an erect, slender, yellow tail 9-11 mm long, the lateral sepals obovate, oblique, connate 6 mm to form a lamina 9 mm long, 21 mm wide expanded, the apices obtuse, contracted into tails similar to that of the dorsal sepal; **petals** white, oblong-ovate, subunguiculate, 5 mm long, 2 mm wide, the apex acute to subacute, the labellar margin thickened, ending in a low callus at the angle between middle third and the claw; **lip** yellow-white, yellow at the apex, oblong, 5 mm long, 2 mm wide, the apex obtuse to rounded, thick, verrucose, with denticulate-erose margins, the disc shallowly sulcate between a longitudinal pair of oblique, verrucose calli near the middle, the base subcordate, hinged beneath; **column** white, semiterete, 4 mm long, the foot 1 mm long with an incurved extension.

PANAMA: **Chiriquí**: Cerro Gordo, collected by R.L. Dressler in 1977, cultivated 6 Mar. 1978, *C. Luer 2788* (Holotype: SEL); mountains of Chiriquí, Feb. 1937, *E.M. Kieswetter s.n.* (AMES); Boquete, Jaremillo, alt. 4,500 ft., 11 Jan. 1939, *M.E. Davidson & D. Terry 1271* (AMES); trail to Cerro Pate Macho, alt. 1500-1750 m, 6 Feb. 1986, *G. McPherson & M. Merello 8278* (MO); without specific locality, collected by A. Maduro, cultivated by Colomborquídeas, 19 Mar. 1989, *C. Luer 14227* (MO).
COSTA RICA: **San José**: El General, alt. 915 m, Jan. 1936, *A. Skutch 2438* (AMES); between Río Coton and Río Negro, 15 Km from Sabalito, alt. 1200-1300 m, 17 Jan. 1967, *W. Burger & G. Matta 4515* (AMES, F, MO).

This species, found in Costa Rica and Western Panama, is closely allied to the sympatric *M. attenuata*, and probably has been identified as such in the past. Except for slightly smaller flowers, herbarium specimens are indistinguishable.

Masdevallia scabrilinguis is distinguished by a single, small, white, tubular flower without stripes, and yellowish sepaline tails about as long as the blades. It is sometimes followed by a second flower. The petals are subacute to acute at the apex, more or less unguiculate at the base, and with the marginal callus lacking an acute tooth. The apex of the oblong lip is obtuse and verrucose. The pair of calli on the disc are verrucose and obtusely angled near the middle. Specimens intermediate between *M. attenuata* and *M. scabrilinguis* have been seen.

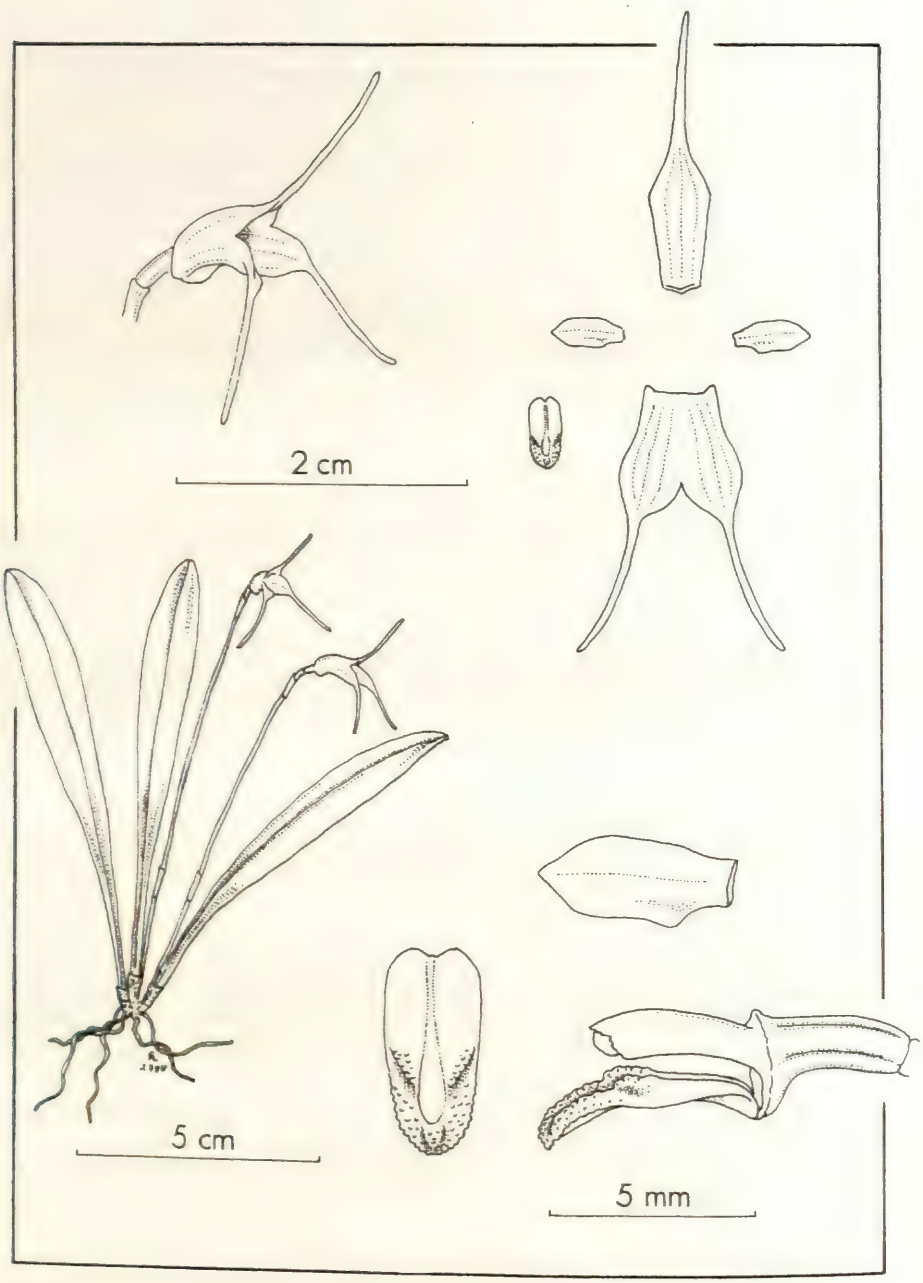


Plate 386. Masdevallia scabrilinguis

Masdevallia tokachiorum Luer, Lindleyana 6: 90, 1991.

Ety.: Named in honor of Robert Tokach, who discovered this species, and Kenneth Tokach of Tacoma, Washington, who successfully cultivated this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-1.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 6-8.5 cm long, the blade narrowly elliptical, subacute, 0.8-1 cm wide, narrowly cuneate below into the indistinctly petiolate base. **Inflorescence** a successively and loosely 2-flowered raceme, borne by a slender, erect to suberect peduncle 6-9 cm long, with a thin bract above the base, from near the base of a ramicaul; floral bracts tubular, thin, 6-9 mm long; pedicel 7-15 mm long; ovary 4-6 mm long; **dorsal sepal** yellow, sparsely short-pubescent within, ovate, the blade 11-13 mm long, 6-8 mm wide, connate to the lateral sepals for 5-7 mm to form a short, broad, cylindrical tube with a deep mentum, the free portion triangular, acute, contracted into a forwardly directed tail 8-10 mm long; **lateral sepals** yellow, suffused with brown except near the margins, densely cellular- glandular and cellular pubescent within, ovate, oblique, the blades 12-15 mm long, 5-6.5 mm wide, diverging, connate 2-3 mm around the mentum, the apices acute, contracted into tails 8-10 mm long; **petals** white, elliptical-oblong, 5.5 mm long, 2.25-2.5 mm wide, the apex retuse or shallowly bilobed, the labellar margin with a low, longitudinal callus, thickest near the middle; **lip** dark purple-brown, oblong, 7.5 mm long, 3 mm wide, the apex rounded with the margins shortly revolute and erose, the disc cellular-glandular, shallowly sulcate between a longitudinal pair of low calli, more distinct above the middle, the base subtruncate, deeply cleft, hinged beneath; **column** white, with purple margins, semiterete, 6 mm long, the foot 5 mm long with an incurved extension.

PANAMA: **Chiriquí**: epiphytic in forest near the Fortuna dam site, alt. ca. 1000 m, collected March 1985 by R. Tokach, cultivated by K. Tokach in Tacoma, WA, Sept. 1990, *C. Luer 14943* (Holotype: MO); collected near Cerro Punta, received from A. Maduro by J & L Orchids, Easton, CT, flowered in cultivation 23 Mar. 2000, *C. Luer 19360* (MO).

This species is uncommon and endemic in western Panama. The first known collection was made by Robert Tokach and it was cultivated by Kenneth Tokach in the state of Washington.

The species is characterized by narrow, shiny leaves and a slender peduncle that produces a second flower following the first. The lateral sepals are only shallowly connate across a mentum below the long, curved column-foot. When erect, the relatively large, dark purple lip is within the flower, but when deflexed on its hinge, it protrudes between the bases of the lateral sepals. The petals are callous along the margin, being thickest near the middle. The lip is oblong with low, longitudinal calli.

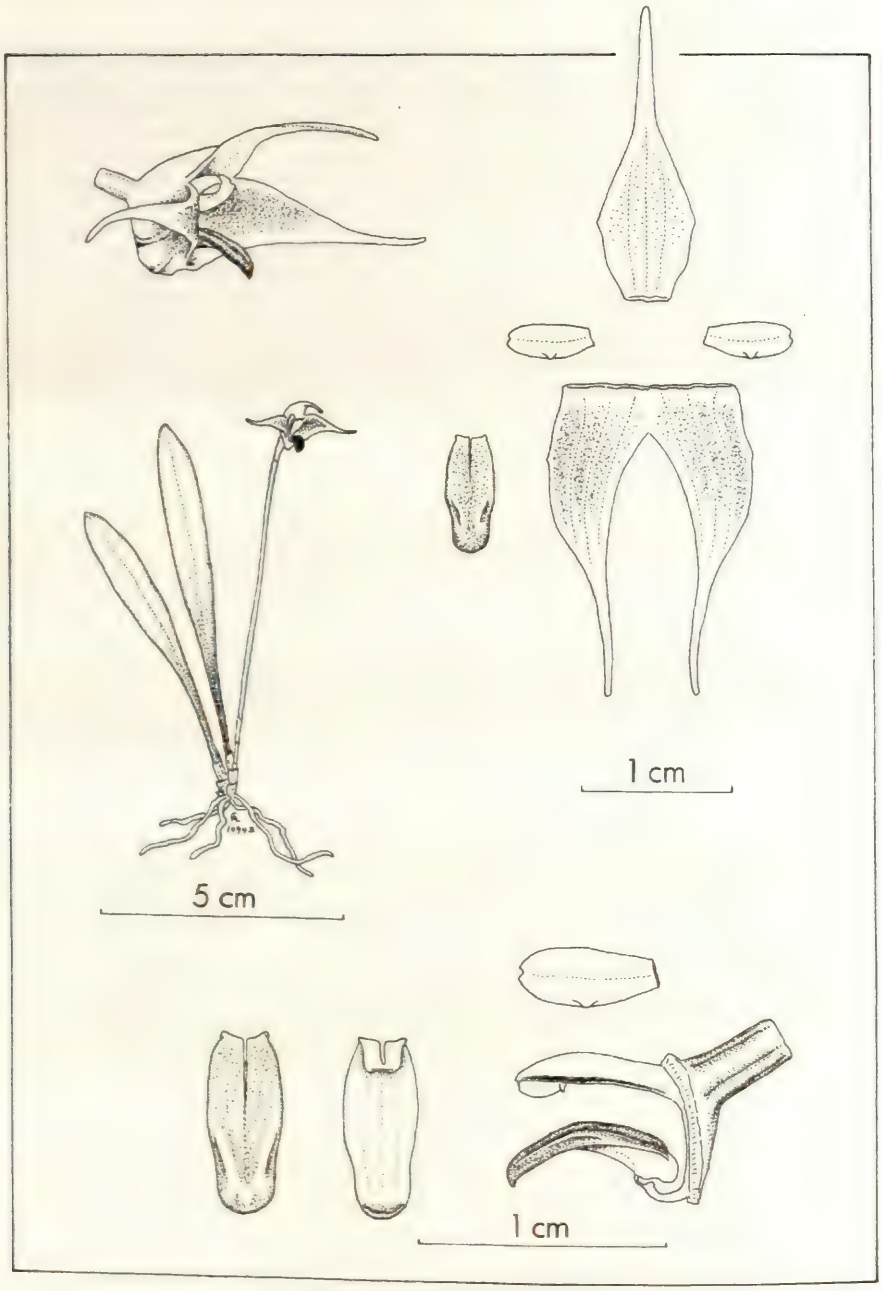


Plate 387. Masdevallia tokachiorum

Masdevallia tonduzii Woolward, Bull. Herb. Boissier ser. 2, 6: 82, 1906.

Ety.: Named in honor of Adolphe Tonduz of l'Institut phytogeographique de Costa Rica who discovered this species.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls stout erect, 0.5-2 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect to suberect, thickly coriaceous, 4.5-9 cm long including an ill-defined petiole 1-1.5 cm long, the blade elliptical-obovate, 1.4-2.2 cm wide, the apex obtuse to rounded, cuneate below into the subpetiolate base. **Inflorescence** a single flower, often followed by a second flower, borne by a suberect to horizontal, slender peduncle 3-6.5 cm long, with a thin bract below the middle, from low on the ramicaul; floral bracts tubular, 5-8 mm long; pedicel 5-13 mm long; ovary 4-5 mm long; **sepals** white or yellow-white, suffused with yellow toward the base, glabrous externally, pubescent within, the dorsal sepal obovate, 12-17 mm long, 9-12 mm wide, connate to the lateral sepals for 9-11 mm to form a conical sepaline tube, the free portion transversely triangular, the obtuse apex contracted into an erect, yellow tail 22-25 mm long, the lateral sepals 15-17 mm long, connate 14 mm into a transversely oblong lamina 15-22 mm wide, more or less broadly ventricose, the obtuse, transversely ovate free portions contracted into yellow tails 19-25 mm long; **petals** white with green midvein, ovate, 7-8 mm long, 2.5 mm wide, the apex acute to obtuse, the labellar half with a longitudinal carina above the margin ending in an obtuse, protruding tooth in the lower third; **lip** white, suffused with green or yellow, oblong-obovate, 6.5 mm long, 2.5 mm wide, the apex subacute, glandular-cellular, the disc lightly longitudinally sulcate, the base subcordate, also glandular-cellular, hinged below; **column** light green, semiterete, 7 mm long, the foot 3 mm long with an incurved extension.

COSTA RICA: without locality, collected in 1894, cultivated at G, Serres de la Pierriere, 7 Dec. 1900, *A. Tonduz s.n.* (Holotype: G). **Cartago**: near Pejivalle, alt. 900 m, 7 Feb. 1926, *P.C. Standley & J. Valerio 46813* (AMES); Peralta, alt. 1,000 ft., Sept. 1923, *C.H. Lankester 539* (AMES). Without locality, cultivated in Cartago by *C.H. Lankester s.n.* (BM). **Limón**: Reserva Biologia Hiloy Cerere, Valle La Estrella, alt. 300 m, 24 Oct. 1978, *C. Todzia s.n.* (SEL); same area, alt. 200 m, 19 Feb. 1989, *G. Herrera & A. Chacón 2422* (CR).
PANAMA: **Bocas del Toro**: Buenavista between Fortuna and the coast, collected by R.L. Dressler, cultivated at SEL, 1 Dec. 1977, *C. Luer 2236* (SEL); epiphytic in tall tree of wet forest, between Fortuna and Chiriquí Grande, alt. 350 m, 17 Feb. 1985, *C. Luer, J. Luer, R. Dressler & K. Dressler 10605* (MO). **Chiriquí**: near Fortuna dam site, alt. 750 m, collected 1977 by R.L. Dressler, cultivated at SEL 6 Jan. 1978, *C. Luer 2270* (SEL).

This not-uncommon species inhabits the warm, moist, tropical forests of the eastern lowland regions of Costa Rica and adjacent Panama. The first plants of this species were discovered in Costa Rica in 1894 by Adolphe Tonduz, and sent to Geneva where they soon flowered. In 1900, specimens were forwarded to Miss Florence Woolward, the well-known, contemporary authority on the genus. She honored the discoverer of the species by naming it for him, the only opportunity she ever had for seeing and describing a heretofore unknown species. A second herbarium specimen from the same collection at Geneva indicates that the plants were still in cultivation in 1910.

Masdevallia tonduzii is distinguished by the short, successively flowered raceme of handsome white flowers suffused with bright yellow. The sepaline tube is covered by a mat of white hairs within. The spreading tails are longer than the blades. The petals possess a longitudinal, labellar callus that terminates in a short, thick, obtuse process above the base. The lip is obovate, obtusely dilated above the middle with the triangular apex narrowly obtuse.

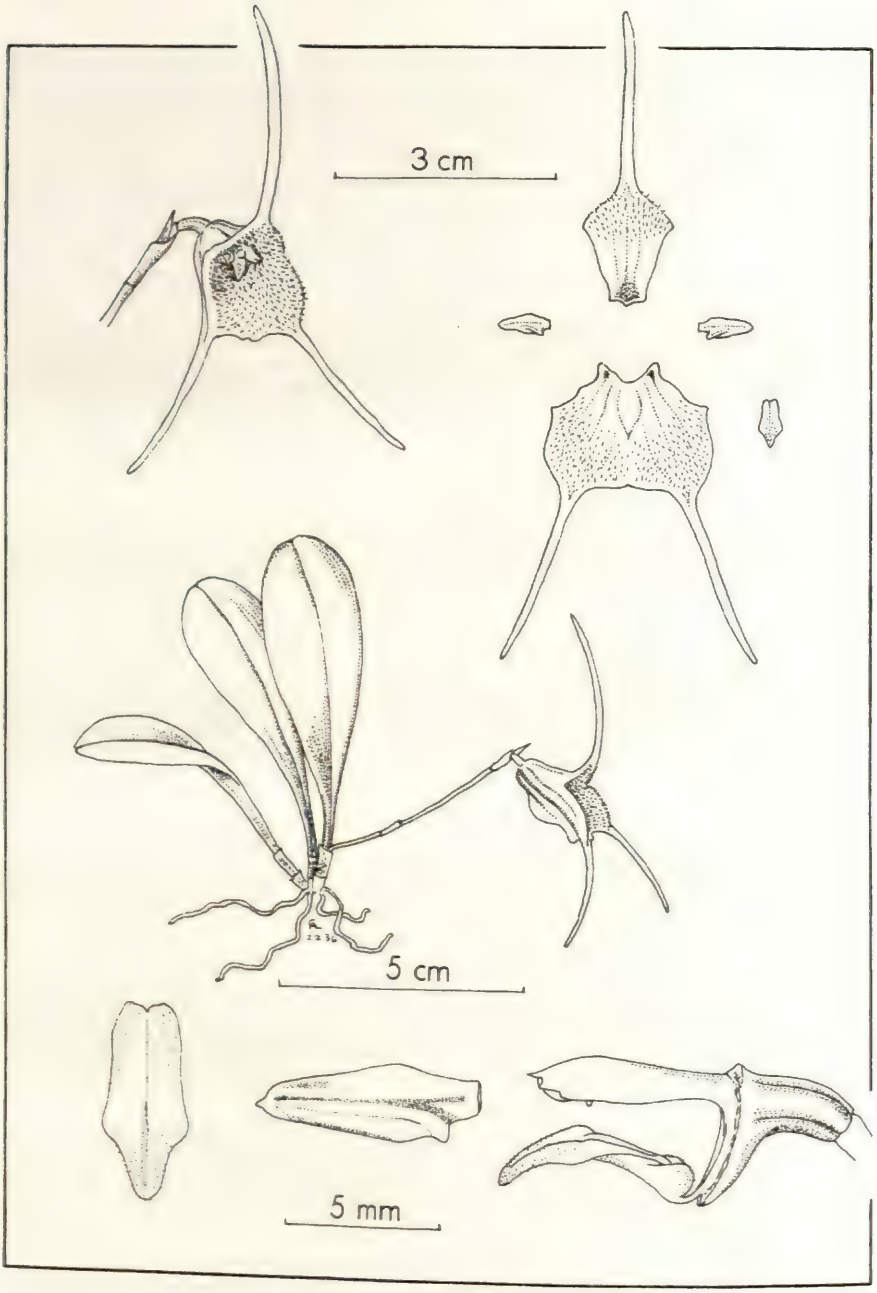


Plate 388. Masdevallia tonduzii

Masdevallia tubuliflora Ames, Orchidaceae 2: 265 et 3: 48, 1908.

Ety.: From the Latin *tubuliflorus*, "with tubular flowers," referring to the sepaline tube.

Syn.: *Masdevallia ecaudata* Schltr., Beih. Bot. Centralbl. 34: 384, 1918.

Ety.: From the Latin *ecaudatus*, "tailless," referring to the sepals.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 5-9.5 cm long including the petiole 1-1.5 cm long, the blade elliptical, subacute to obtuse, 1-1.4 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single flower borne by a slender, erect to suberect peduncle 4.5-6.5 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 4-8 mm long; pedicel 8-12 mm long; ovary 5-6 mm long; **sepals** white, glabrous or microscopically pubescent within, the dorsal sepal narrowly oblong, 15-17 mm long, 2.5-3 mm wide, connate to the lateral sepals for 7.5-8 mm to form a lightly arcuate, sepaline tube, the free portion about equally long, greenish white, thickened, forwardly directed, narrowly oblong, acute, the lateral sepals lightly suffused with rose medially, obovate, oblique, 13-14 mm long, connate 8 mm to form a lamina 6-9 mm wide, the base forming a short mentum with the column-foot, the free portions oblique to falcate, acute; **petals** white, oblong, 4 mm long, 1 mm wide, the apex obtuse, more or less tridenticulate, the labellar half with a narrow, longitudinal callus above the margin ending in a minute, acute tooth between the middle and lower thirds; **lip** light yellow-orange, more or less dotted with brown, narrowly oblong-ovate, acute, 4 mm long, 1.25 mm wide, the disc with a pair of low, longitudinal calli above the middle, the base subcordate, hinged beneath; **column** greenish-white, semiterete, 3.5 mm long, the foot 1 mm long with an incurved extension.

GUATEMALA: **Alta Verapaz**: Cubilquitz, alt. 350 m, Jan. 1902, *H. von Türckheim 512* (Holotype: AMES); Chahaal, alt. 600 m, collected by Peter Meng, cultivated in Guatemala, 18 Feb. 1981, *C. Luer 5843* (SEL).
BELIZE: near Cockscomb Mts. alt. 500 m, June 1930, *W.A. Schipp S102* (AMES).
NICARAGUA: **Matagalpa**: Tuma grade, alt. 1020 m, *A.H. Heller 11171* (SEL).
COSTA RICA: **Heredia**: Puerto Viejo de Sierra Piqui, alt. 100 m, collected by C. Todzia, cultivated in San José, 24 Sept. 1979, *C. Luer 4284* (SEL); around San José, alt. 1135 m, Nov. 1890, *Biolley 3127* (holotype of *M. ecaudata* destroyed at B). **Alajuela**: Tapeseo de Tarcero, alt. 550 m, 1 Sept. 1938, *A. Smith H1159* (K).

This little species occurs over a wide area of lowland Central America. Apparently it had been collected in Costa Rica long before the first description of the species from Guatemala by Ames. Schlechter's description and illustration of *M. ecaudata* with tailless lateral sepals apply to *M. tubuliflora* although the altitude and locality around San José suggest *M. striatella* Rchb.f. Since Schlechter's herbarium specimens were destroyed in the bombing of Berlin, there will never be a way to clarify the question positively. No isotype has been found.

Masdevallia tubuliflora belongs to section *Minutae* which is typified by a minute, pointed tooth terminating a narrow, longitudinal callus above the margin of a thin petal between the middle and lower thirds. The margins of the petals of *M. striatella* are broad and thickened without a narrow, longitudinal callus.

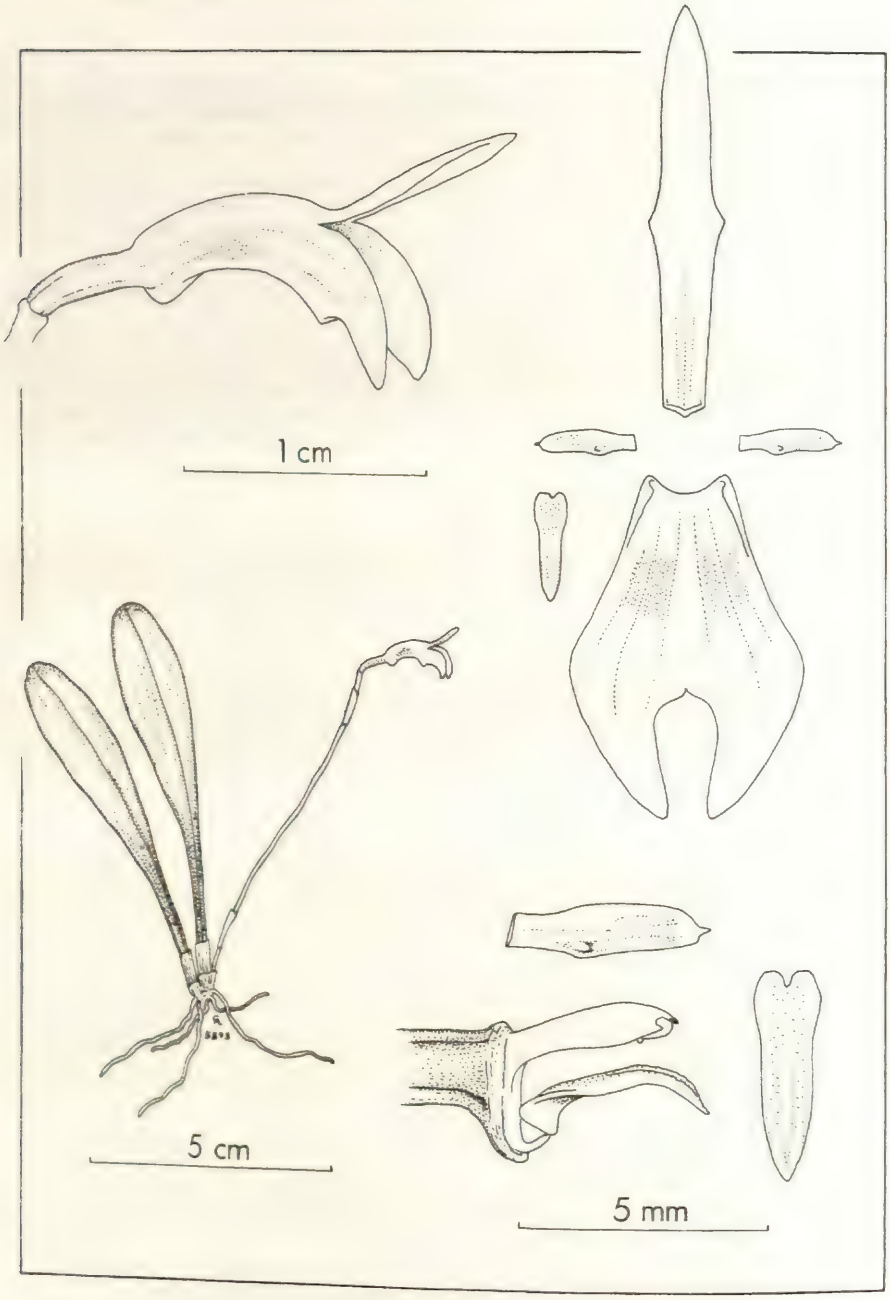


Plate 389. Masdevallia tubuliflora

Masdevallia wendlandiana Rchb. f., Gard. Chron. ser. 1: 174, 1887.

Ety.: Named in honor of Herr Oberhofgärtner Hermann Wendland who cultivated this species at the royal Herrenhausen Botanical Garden in Hannover.

Syn.: *Masdevallia yauaperyensis* Barb. Rodr., Vellosia ed. 2, 1: 121, 1891.
Ety.: Named for Rio Yauapery in Amazonian Brazil where this species was collected.

Syn.: *Masdevallia ulei* Schltr., Notizbl. Bot. Gart. Berlin-Dahlem 6: 122, 1914.
Ety.: Named in honor of its collector, Herr E. Ule.

Syn.: *Masdevallia rodrigueziana* Mansf., Notizbl. Bot. Gart. Berlin-Dahlem 10: 397, 1928.
Ety.: Named in honor of Barbosa Rodrigues, noted orchid botanist of Brazil.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 0.5-1.5 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect to suberect, coriaceous, narrowly obovate, obtuse, 4-6 cm long, 0.9-1.2 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a solitary flower borne by a suberect, slender peduncle 4-7 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 6 mm long; pedicel 6-7 mm long; ovary 3-4 mm long; **sepals** white or pale green, lightly suffused with rose, glandular-cellular within, the blade of the dorsal sepal oblong, 9-11 mm long, 3.5-5 mm wide, the 3 veins often lined with purple, connate to the lateral sepals for 6-8 mm to form a cylindrical, sepaline tube, the triangular apex gradually narrowed into a forwardly directed, white tail 9-14 mm long, often yellowish near the apex, the lateral sepals usually with two purple veins and suffused with purple between, oblong, 11-14 mm long, 3.5-5 mm wide, connate 6-7 mm, forming a shallow mentum with the column-foot, the acute apices gradually narrowed into broad, white tails 6-11 mm long; **petals** white, oblong, 5 mm long, 1.5 mm wide, the apex acute, the labellar half with a longitudinal lamella ending in an acute or obtuse point between the middle and lower thirds; **lip** white, diffusely dotted with purple, oblong-ligulate, 4-5 mm long, 1.5 mm wide, the disc with a pair of low, oblique calli near the middle, the apex obtuse, often orangish, microscopically subverrucose, the base subcordate, hinged below; **column** white with purple margins, semiterete, 4-4.5 mm long, the foot stout with an incurved extension.

COLOMBIA: without locality, imported by F. Sander, cultivated at Herrenhausen by *H. Wendland s.n.* (Holotype: W, Isotype: K). **Cauca**: cultivated in Popayán by Sra. Amalia Lehmann de Sarria, 25 July 1978, *C. Luer 2983* (SEL). **Vaupés**: Cerro Mitu near the caves, 29 Oct. 1976, *E.W. Davis 183* (AMES).
VENEZUELA: **Amazonas**: Río Orinoco, between Puerto Nariño and San Fernando de Atabapo, alt. ca. 120 m, *G.C.K. Dunsterville 692* (?NY); Río Negro, Caño Baria, alt. 130 m, 1 Apr. 1984, *R. Liesner 17068* (MO, NY); Río Negro, alt. 130 m, 29 May 1984, *R. Liesner 17022* (MO). **Bolívar**: Quebrada Los Brasileros southeast of Icabarú, alt. 480 m, 16 Dec. 1978, *J.A. Steyermark, V. Carreño, G.C.K. & E. Dunsterville 117686* (MO, VEN); Río Cauna south of Las Pavas, alt. 240 m, 11 May 1982, *R. Liesner & G. Murillo 14042* (MO, NY).
BOLIVIA: **La Paz**: Iturralde, Tumupasa, road to Ixiamas, alt. 1,000- 1,500 ft., 21 Dec. 1921, *O.E. White 1112* (AMES).
BRAZIL: **Amazonas**: Río Yauaperi, *B. Rodrigues s.n.* (holotype of *M. yauaperiënsis* is Rodrigues' illustr.); epiphytic, Seringal San Francisco, Alto Acre-Gebiet, alt. 350 m, Aug. 1911, *E. Ule 9260* (holotype of *M. ulei*: destroyed at B); Symphatia-Jurua, Jan. 1926, *G. Hübner 224* (holotype of *M. rodrigueziana*: destroyed at B). *Bahia*: Rio do Meío, 300 m, collected by E. Silva, cultivated by *M. Campacci s.n.* (MO).
ECUADOR: **Napo**: Río Guepi, alt. 200 m, 7 May 1980, *J. Brandbyge & E. Asanza s.n.* (AAU). *Sucumbíos*: Río Largartococha. alt. 170 m, Mar. 1990, *A. Hirtz 4719* (MO).
PERU: **Madre de Dios**: Puerto Maldonado, Río Madre de Dios, alt. ca. 300 m, collected by E. Lenkenhoff, cultivated by W. Königer in Munich, Germany, 2 Sept. 1982, *C. Luer 8126* (MO, SEL, Herb. H. Königer); Puerto Maldonado, Río Madre de Dios, alt. 200 m, 27 May 1989, *P. Núñez, O. Phillips & N. Jaramillo 10486* (MO). **San Martín**: without locality, 25 Mar. 1925, *D. Melin s.n.* (S).

This species is widely distributed in the forests of the Amazon basin of Brazil and at moderately low altitudes in adjacent Venezuela, Colombia, Ecuador and Peru. The origin of the original collection is unknown. It was described from a specimen cultivated by Wendland. It is allied to sympatric *M. minuta*, but *M. wendlandiana* has larger flowers that are usually broadly striped and suffused in purple, and with broader tails. The petals and lip are very similar.

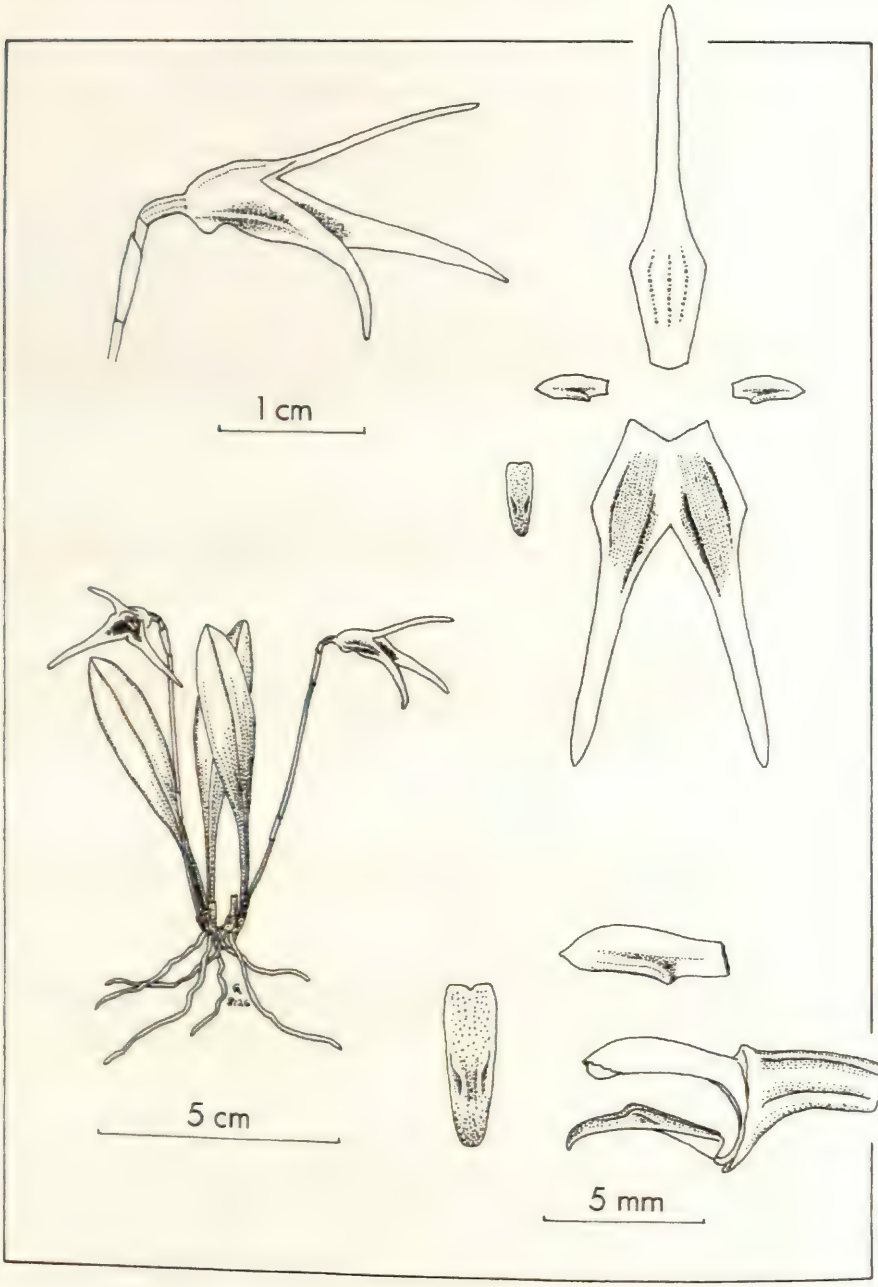


Plate 390. Masdevallia wendlandiana

CUMULATIVE INDEX OF SCIENTIFIC NAMES
for PARTS ONE, TWO, and THREE

Dracula 2, 589
Dracula chimaera 287
  levii 589
  mopsus 477
Dryadella 2
Humboldtia plantaginea 483
Lepanthes 1
Lothiania bilabiata 353
Luerella pelecaniceps 6
Masdevallia 1, 2, 6, 7, 265, 357, 365, 401, 431, 483, 741
  subgen. Amanda 3, 7, 9, 10, 431
  subgen. Cucullatia 1, 3, 7, 9, 10
  subgen. Fissia 1, 3, 7, 9, 10
  subgen. Masdevallia 3, 7, 10, 12, 147, 235, **265**, 266, 369, 431
  subgen. Meleagris 3, 7, 8, 10
  subgen. Nidificia 1, 7, 9, 10
  subgen. Polyantha 1, 7, 10, **11**, 127, 235, 245, 369, 519, 719
  subgen. Pygmaeia 1, 3, 7, 10, *431*, 433, 473
  subgen. Scabripes 1, 7, 8, 10
  subgen. Volvula 1, 7, 9, 10
  sect. Alaticaules 3, 5, 7, 9, 10, 11, 12, **13**, 105a, 155a, 207a, 223, 245, 249
  sect. Amaluzae 7, 9, 10, 237, 431, **432**, 434, 491
  sect. Aphanes 7, 8, 10, 431, **432**, 434, 435, 595
  sect. Clausae-porrectae 520
  sect. Coriaceae 3, 4, 7, 8, 10, 73, 235, 265, 266, **267**, 315, 363, 399, 401, 519, 583, 619, 723, 725
  sect. Dentatae 1, 7, 9, 10, 265, 266, **369**, 401
  sect. Durae 1, 4, 7, 9, 10, 265, 266, 369, **379**, 395, 399, 401
  sect. Eumasdevallia 265, 520
  sect. Floribundae 719
  sect. Leontoglossae 267
  sect. Masdevallia 6, 7, 8, 10, 265, 266, 519, 631
  sect. Minutae 7, 8, 9, 10, 265, 266, 401, 631, **719**, 725
  sect. Polyanthae 7, 9, 10, 11, 12, 73, **223**, 224, 227a, 237, 249, 369
  sect. Pygmaeae 7, 8, 10, 431, **432**, 434
  sect. Racemosae 3, 7, 8, 10, 265, 266
  sect. Reichenbachianae 7, 8, 9, 10, 12, 265, 266, **401**, 409, 417, 419, 633
  sect. Triangulares 701
  sect. Triotosiphon 7, 8, 10, 265, 266, 759
  sect. Urceolares 520, 701
  sect. Zahlbruckneri **432**, 434, 435,
  subsect. Alaticaules 7, 12, **13**, 17, 127, 223
  subsect. Amaluzae 7, 10
  subsect. Aphanes 1, 3, 7
  subsect. Breviscapae 13
  subsect. Caudatae 7, 147, 519, 520, 665, 709
  subsect. Coaetaneae 1, 7, 12, **13**
  subsect. Coccineae 7, 265, 519
  subsect. Dentatae 369, 401
  subsect. Durae 379
  subsect. Longiscapae 13, 223
  subsect. Masdevallia 7, 8, 519, 520, 523, 583, 595, 619, 665, 709
  subsect. Oscillantes 7, 147, 519
  subsect. Polyanthae 7, 12, **223**, 224
  subsect. Pterygiophorae 1, 7, 10, 432
  subsect. Reichenbachianae 401
  subsect. Saltatrices 1, 7, 409, 419, 449, 519, 520, 524
  subsect. Successiviflorae 1, 7, 12, **223**
  subsect. Tubulosae 520
  subsect. Zahlbrucknerae 1, 7, 10, 431
Masdevallia acrochordonia 14, 195, **23a.**, *Plate 391.*
  adamsii 719, 721, **723**,*Plate 364.*
  adrianae 14, 18, **23**, *Plate 1.*
  aenigma 14, 20, **25**, *Plates 2., 3.*, 85
  aequatorialis 267, 345
  aequiloba 267, 295
  affinis 520, 601, 603
    subsp. maculigera 520, 601
    subsp. petiolaris 520, 601
  aguirrei 14, 18, **27**, *Plate 4.*, 105a
  albida 14, 101
  alismifolia 605
  amaluzae 7, 431, 433, 435, **437**, *Plate 216.*, 447, 469, 479, 491, 499
  amanda 7
  amplexa 14, 20, **29**, *Plate 5.*
  ampullacea 449
  anachaeta 431, 433, 436, **439**, *Plates 217., 218.*, 467
  anfracta 14, 20, **31**, *Plate 6.*
  angulata 107, 267, 269, **273**, *Plate 133.*, 283, 345, 349
  "antennifera" 459
  aphanes 7, 431, 433, 435, **433**, *Plate 219.*, 493
  arangoi 719, 721, **725**, *Plate 365.*
  aristata 14, 101
  aspera 520, 645
  asperrima 14, 123
  assurgens 2, 520, 524, 525, **529**, *Plates 262., 263.*
  atahualpa 267, 271, **275**, *Plates 134., 135.*
  atroviolacea 267, 333
  attenuata 579, 585, 719, 722, **727**, *Plates 366., 367., 368.*, 737, 751, 763, 765
  audax 433, 434, **445**, *Plate 220.*
  aurantiaca 14, 101
  aureo-rosea 14, 35
  auropurpurea 14, 25, 35
  aurorae 433, 434, **447**, *Plate 221.*
  ayabacana 379, 380, **381**, *Plate 191.*, 391, 395
  bangii 3, 7
  belua 267, 271, **277**, *Plate 136.*, 283
  bennettii 14, **33**, *Plate 7.*
  berthae 433, 436, **449**, *Plate 222.*
  bicolor 14, 15, 16, 20, 22, 25, 31, **35**, *Plates 8., 9., 10., 11.*, 37, 41, 59, 61, 79, 105, 115, 181, 183, 243, 245, 249
  bicornis 3, 7
  biflora 14, 35

Masdevallia bilabiata 267, 353
blanda 520, 547
bogotensis 267, 299
bonplandii 267, 268, 270, **279**, *Plates 137, 138.* 281, 295, 301, 355
borucana 224, 239
bourdettiana 267, 270, 277, **283**, *Plate 139.*
brachyantha **227a**, *Plate 257.*, 657
brachyura 14, 21, **41**, *Plate 12.*
brenneri 14, 18, 19, **43**, *Plate 13.*
bruckmuelleri 267, 299
bryophila 14, 16, 22, **45**, *Plate 14.*
buccinator 14, 18, 22, **47**, *Plate 15.*, 169, 219
buchtienii 520, 663
burfordiensis 267, 273
burianii 520, **531**, *Plate 264.*
burzlaffiana 719, 739, 741
cacodes 267, 270, **285**, *Plate 140.*
caesia 2, 6, 267, 268, 269, **287**, *Plate 141.*
calagrasalis 14, 19, **49**, *Plate 16.*, 91
calocodon 520, 711
calura 401, 402, **403**, *Plate 201.*, 415, 421
campyloglossa 3, 267, 268, 269, **289**, *Plates 142., 143., 144., 145.*, 291, 357
subsp. ortgiesiana 267, 289
capillaris 433, 483
candida 14, 193
cardiantha 14, 19, **51**, *Plate 17., 109*
carmenensis 433, 434, **451**, *Plate 223.*,481
carpishica 520, 526, **533**, *Plate 265.*
carruthersiana 14, 15, 16, 21, 22, 51, **53**, *Plates 18., 19., 20.*, 135, 199
caudata 7, 561,
carolloi 14, 181
casta 520, 691
caudivolvula 6, 7, 365
cayennensis 14, 63, 65
chaparensis 520, 521, 528, *535*, *Plate 266.*, 637, 707
chasei 401, 402, **405**, *Plate 202.*
chimboënsis 433, 434, **453**, *Plate 224.*
chiquindensis 479, 520, 613
chloracra 224, 255, 257
chlorotica 520, 601
chontalensis 719, 721, **731**, *Plates 369., 370.*, 733, 745
chrysochaete 520, 675
chrysoneura 520, 697
chrysonota 41
cinnamomea 14, 22, **57**, *Plate 21.*, 125, 159
citrinella 317
civilis 267, 270, **295**, *Plate 146.*, 295, 325, 351
civilis *'Don'* 313
clandestina 520, 523, 528, **537**, *Plate 267.*
cleistogama 520, 523, **539**, *Plate 268.*
cocapatae 14, 20, **59**, *Plate 22.*
coccinea 7
colibri 14, 195
collantesii 433, 435, **455**, *Plate 225.*, 461
collina 7, 369, 370, **371**, *Plate 187.*, 375
var. macrogenia 369, 375
colossus 267, 270, 271, 277, 283, **297**, *Plates 147., 148.*, 307, 313
concinna 14, 22, **61**, *Plates 23., 24.*
condorensis 520, 525, **541**, *Plate 269.*
Masdevallia confusa 520, 601
constricta 449
corderoana 521, 527, **543**, *Plate 270.*, 553, 679, 717
coriacea 7, 267, 268, 270, 281, 295, **299**, *Plates 149., 150.*, 301, 603, 725
subsp. bonplandii 267, 279
cosmia 224, 225, **227**, *Plate 114.*, 247
costaricensis 401, 415
cranion 521, 524, **545**, *Plate 271.*, 551, 577, 629
crescenticola 719, 721, **735**, *Plate 371.*
crassicaulis 520, 521, 524, 525, **547**, *Plate 272.*
cucullata 7
cuprea 14, 15, 17, 18, 27, **63**, *Plates 25., 26., 27., 28.*, 131, 143, 191, 213
subsp. hepatica 14, 63
cupularis 224, 225, **229**, *Plate 115.*, 331, 425
curtipes 224, 225, **231**, *Plates 116., 117.*, 233
cyclotega 667, 699
"cyphosolenium" 693
datura 521, 524, **549**, *Plate 273.*, 615
deceptrix 14, 19, **69**, *Plates 29., 30.*, 187
demissa 401, 402, **407**, *Plate 203.*
var. superflua 224, 255
deniseana 521, 524, **551**, *Plate 274.*
deorsa 287
deorsum 267, 287
dermatantha 267, 289, 353
descendens 14, 17, **71**, *Plate 31.*, 111
diantha 719, 731
discoidea Cover Pt. 1, 224, 225, **233**, *Plate 118.*
dispar 14, 165
don-quijote 14, 19, **73**, *Plate 32.*
dorisiae 14, 19, **75**, *Plate 33.*
"daguensis" 453
draconis 14, 18, **77**, *Plate 34.*, 115a
dreisei 521, 525, **553**, *Plate 275.*
dryada 369, 370, **373**, *Plate 188.*, 377
dudleyi 521, 528, **555**, *Plate 276.*
dunstervillei 14, 22, **79**, *Plate 35.*
dura 7, 379, 380, **383**, *Plate 192.*, 395
ecaudata 719, 771
elachys 521, 525, **557**, *Plate 277.*
elegans 521, 527, **559**, *Plates 278., 279.*
elephanticeps 4, 267, 271, **303**, *Plate 151.*, 311, 313, 327, 343, 367, 627
var. pachysepala 303, 333, 343
ellipes 267, 347, 349
empusa 14, 15, 18, 19, 22, **83**, *Plate 37.*, 141
enallax 401, 402, **409**, *Plate 204.*, 419
encephala 89a, 521, 525, **561**, *Plate 280.*
endotrachys 267, 279
ensata 521, 522, 527, **563**, *Plate 281.*, 603, 705
epallax 401, 409
ephippium 14, 195, 197
var. acrochordonia 14, 195
erinacea 431, 433, 436, **457**, *Plates 226., 227.*, 459, 465
eumeces 224, 225, **235**, *Plate 119.*
eumeliae 699
excelsior 14, 21, **85**, *Plate 38.*
exigua 433, 487
expers 433, 435, 455, **461**, *Plate 228.*
exquisita 521, 525, **565**, *Plate 282.*
falcago 521, 522, 524, **567**, *Plate 283.*

Masdevallia fertilis 267, 289
figueroae 521, 528, **569**, *Plates 284., 285., 286.*
filamentosa 521, 655
flaccida 521, 597
flaveola 719, 721, **737**, *Plate 372.*
floribunda 645, 719, 720, 722, **739**, *Plates 373., 374., 375., 376.*, 741, 761
subsp. tuerckheimii 719, 739
foeda 224, 227, 247
foetens 268, 270, 285, **305**, *Plate 152.*
fonsecae 719, 727
forgetiana 14, 101, 103
fosterae 14, 21, **87**, *Plate 39.*
fractiflexa 268, 270, 271, 283, 297, **307**, *Plates 153, 154.*, 337
fragrans 268, 271, **309**, *Plate 155.*, 325
frilehmannii **89a**, *Plate 392.*
frontinoënsis 719, 749
fulvescens 401, 402, **411**, *Plates 205., 206.*
funebris 401, 421
galeottiana 719, 739, 740, 741
garciae 12, 15, 20, **89**, *Plate 40.*, 224, 225
gargantua 268, 271, **311**, *Plates 156, 157.*, 313
geminiflora 719, 721, 733, **745**, *Plate 377.*
"geminiflora" 733, 745
gerlachii 268, 323
gilbertoi 521, 525, **573**, *Plate 287.*
glandulosa 521, 526, **575**, *Plate 288.*
glomerosa 521, 524, 551, **577**, *Plate 289.*
glossacles 433, 473
goliath 379, 380, **385**, *Plate 193.*, 387, 389, 391, 397
gomeziana 521, 601
grandiflora 521, 655
guayanensis 521, 523, **579**, *Plate 290.*, 727
guerrieroi 15, 18, 49, **91**, *Plate 41.*
gutierrezii 719, 722, **747**, *Plate 378.*
guttulata 15, 17, 20, **93**, *Plates 42., 43.*, 131
haematosticta 268, 325, 347, 349
hartmanii 521, 527, **581**, *Plate 291.*
hajekii 521, 535
heideri 521, 526, **583**, *Plate 292.*
helenae 521, 527, **585**, *Plate 293.*
helgae 15, 17, **97**, *Plate 44.*
henniae 433, 436, **463**, *Plate 229.*, 473
hepatica 15, 63
hercules 327
herradurae 719, 720, 721, **749**, *Plate 379.*
herzogii 15, 35
"heteromorpha" 459
heterotepala 268, 289
hians 319, 521, 524, **587**, *Plate 294.*
hieroglyphica 521, 526, **589**, *Plate 295.*
hoeijeri Frontispiece Part-2, 433, 436, **465**, *Plate 230.*, 485
hoppii 268, 341
horrida 433, 457
humilis 433, 509
hylodes 268, 270, **315**, *Plate 158.*
hymenantha 521, 526, **591**, *Plate 296.*, 689
hystrix 268, 270, **317**, *Plate 159.*
"hystrix" 459
idae Appendix 1.
Masdevallia impostor 15, 19, 73, **99**, *Plate 45.*, 187
indecora 433, 436, **467**, *Plate 231.*
infracta 3, 11, 12, 14, 15, 16, 21, 22, 81, **101**, *Plates 46., 47.*, 133, 139, 163, 189, 224, 225, 231, 233, 261
var. aristata 15, 101
var. purpurea 15, 101
subsp. obscurans 15, 133
subsp. oscitans 15, 139
ingridiana **105a**, *Plate 258.*
ionocharis 520, 521, 525, **593**, *Plate 297.*
var. approviata 521, 593
ishikoi 521, 528, **595**, *Plate 298.*
isos 15, 21, 22, **105**, *Plates 48, 49.*
jarae 224, 225, **237**, *Plate 120.*
jimenezii 15, 83
juan-albertoi 521, 526, **597**, *Plate 299.*
kalbreyeri 521, 701
karineae 521, **599**, *Plate 300.*
kuhniorum 15, 17, 71, **107**, *Plate 50.*, 221
laevis Frontispiece Part-3, 520, 521, 522, 528, 537, 543, 563, 597, **601**, *Plates 301., 302., 303., 304., 305.*, 603, 605, 697
lamprotyria 521, 526, **609**, *Plate 306.*
lankesteriana 401, 402, **413**, *Plate 207.*
"lappacea" 487
lata 7, 165, 223, 224, 225, **239**, *Plate 121.*, 241
laucheana 720, 722, 727, 737, **751**, *Plate 380.*
lawrencei 15, 93
lenae 15, 21, **109**, *Plates 51., 52.*
leonardoi 521, 525, **611**, *Plate 307.*
leontoglossa 267, 268, 269, **319**, *Plate 160.*, 325
lepida 521, 528, 601, 603
leucantha 520, 521, 523, **613**, *Plate 308.*
lewisii 521, 526, **615**, *Plate 309.*
ligiae 409
lilacina 521, 526, **617**, *Plate 310.*, 661
lilianae 268, 270, **321**, *Plate 161.*
limax 577
lindeniana 720, 739, 740, 741
lineolata 521, 527, **619**, *Plate 311.*
lintricula 15, 17, 71, **111**, *Plates 53., 54.*
livingstoneana 720, 721, **753**, *Plate 381.*, 755
longicaudata 15, 101
lucernula 521, 524, **621**, *Plate 312.*
luziae-mariae **113a**, *Plate 393.*
macrogenia 369, 370, 373, **375**, *Plate 189.*, 377
macroglossa 268, 269, 270, **323**, *Plates 162., 163.*, 325
"macroglossa" 353
"macronema" 655
macropus 521, 527, **623**, *Plate 313.*, 633
macrura 268, 271, **327**, *Plate 164.*
maculata 15, 19, 69, 99, **113**, *Plate 55.*, 187, 189
var. flava 15, 113
var. popayanensis 99
maculigera 521, 601, 605
maduroi 224, 225, **241**, *Plate 122.*
mallii **115a**, *Plate 259.*
maloi 268, 271, **329**, *Plate 165.*
manarana 521, 579
manchinazae 433, 434, **469**, *Plate 232.*, 475
margaretae 15, 53
manoloi 521, 527, **625**, *Plate 314.*
marginella 401, 402, 409, **415**, *Plate 208.*, 421

Masdevallia martineae 15, 20, **115**, *Plate 56.*
martiniana 15, 18, **117**, *Plate 57.*
mascarata 15, 20, **119**, *Plate 58.*
mastodon 521, 527, 623, **627**, *Plate 315.*
mataxa 433, 434, **471**, *Plate 233.*
maxillariiformis 521, 675
mayaycu 109, 224, 225, **243**, *Plate 123.*
medinae 521, 524, 551, **629**, *Plate 316.*
medusa 15, 22, **121**, *Plate 59.*, 261
megaloglossa 15, 201
mejiana 401, 402, **417**, *Plate 209.*
melanoglossa 521, 523, **631**, *Plate 317.*, 689
melanoxantha 7, 13, 14, 15, 18, 77, **123**, *Plate 60.*, 177
meleagris 7, 603
melina 268, 321
menatoi 224, 225, 227, **245**, *Plates 124, 125.*, 247, 249
mentosa 433, 436, **473**, *Plates 234, 235.*
merinoi 433, 434, **475**, *Plate 236.*
metallica 268, 287
mezae 15, 22, **125**, *Plate 61.*
"microscopica" 487
midas 521, 524, **633**, *Plate 318.*
militaris 295
minuta 7, 631, 687, 719, 720, 721, 723, 735, 747, **757**, *Plates 382., 383.*, 759, 773
misasii 268, 269, **331**, *Plates 166, 167.*
monogona 15, 20, **127**, *Plate 62.*
mooreana 267, 268, 269, **333**, *Plates 168., 169.*, 335, 343
morenoi 433, 495
moyobambae 15, 213
murex 268, 269, **337**, *Plate 170.*
muriculata 433, 487
myriostigma 720, 739
naranjapatae 433, 435, **477**, *Plate 237.*, 507
navicularis 15, 16, 17, **129**, *Plate 63.*
nebulina 521, 524, **635**, *Plate 319.*, 707
newmaniana 379, 380, **387**, *Plate 194.*
nicaraguae 720, 721, **761**, *Plate 384.*
nidifica 7
nitens 521, 527, **637**, *Plate 320.*
norae 15, 18, 93, **131**, *Plate 64.*
normanii 401, 421
norops 522, 524, **639**, *Plate 321.*
nutans 433, 439
obscurans 15, 21, **133**, *Plate 65.*
ochracea 268, 299
odontocera 522, 527, **641**, *Plate 322.*
odontochila 224, 229, 425
odontopetala 15, 22, **135**, *Plate 66.*
omorenoi 15, 20, **137**, *Plate 67.*
oreas 224, 225, **249**, *Plate 126.*
ortgiesiana 268, 289, 291
oscarii 268, 270, **339**, *Plate 171.*
oscitans 15, 22, **139**, *Plate 68.*
os-viperae 522, 524, 526, **643**, *Plates 323., 324.*
pachyantha 268, 271, **341**, *Plate 172.*
var. hoppii 268, 341
pachysepala 268, 271, **343**, *Plate 173.*
paivaëana 2, 520, 522, 523, 525, **645**, *Plate 325.*
panamensis 720, 753
pandurilabia 251
Masdevallia panguiënsis 379, 380, 387, **389**, *Plate 195.*
pantherina 522, 601
paquishae 433, 435, 447, 469, **479**, *Plate 238.*
pardina 267, 268, 271, **345**, *Plate 174.*
parvula 633, 667
pastensis 522, 697
pastinata 15, 20, **141**, *Plate 69.*
patchicutzae 15, 20, **143**, *Plate 70.*
patriciana 522, 525, **647**, *Plate 326.*
patula 433, 434, 451, 471, **481**, *Plate 239.*
pelecaniceps 6
peristeria 267, 268, 271, 325, **347**, *Plates 175., 176.*, 349
subsp. haematosticta 268, 347
peruviana 15, 35, 183
pescadoënsis 720, 721, **763**, *Plate 385.*
petiolaris 522, 601, 605
phacopsis 522, 528, **649**, *Plate 327.*
phoenix 15, 18, **145**, *Plate 71.*
picea 268, 271, 295, **351**, *Plate 177.*
picta 522, 525, 533, 541, **651**, *Plate 328.*
picturata 7
"pink uniflora" 659
pinocchio Frontispiece Part-1, 15, 17, **147**, *Plate 72.*
plantaginea 433, 435, **483**, *Plate 240.*
platyglossa 267, 268, 269, **353**, *Plate 178.*
polita 401, 402, **419**, *Plate 210.*
polyantha 11, 223, 224, 253
popowiana 522, 528, **653**, *Plate 329.*
porcelliceps 268, 323, 325
var. sulphurea 268, 279
portillae 15, 17, **149**, *Plate 73.*
posadae 15, 16, 22, **151**, *Plates 74, 75.*
princeps 379, 380, **391**, *Plate 196.*, 393
prolixa **155a**, *Plate 260.*
prosartema 15, 21, **155**, *Plate 76.*
pterygiophora 7, 432, 433, 436, **485**, *Plate 241.*, 489
"pusillissima" 487
pumila 521, 522, 523, 611, 617, **655**, *Plate 330.*, 661
pygmaea 7, 431, 433, 436, 465, **487**, *Plate 242.*
pyknosepala 433, 435, **489**, *Plate 243.*
pyxis 224, 225, **251**, *Plate 127.*
quasimodo 522, 526, **657**, *Plate 331.*
racemosa 2, 7, 315, 603
rana-aurea 522, 643
rauhii 15, 125
reichenbachiana 7, 401, 402, 415, **421**, *Plates 211., 212.*, 423
var. aurantiaca 402, 421, 423
var. funebris 402, 421
receptrix 16, 21, **157**, *Plate 77.*
rechingeriana 16, 69, 169, 171
recurvata 16, 21, **159**, *Plate 78.*
reflexa *Schltr.* 224, 229
reflexa *Misas* 268, 332
regina 379, 380, 391, **393**, *Plate 197.*
revoluta 16, 18, **161**, *Plate 79.*
richardsoniana 12, 16, 21, **163**, *Plate 80.*, 224, 225
richteri 16, 201
ricii 583
rigens 268, 270, 295, **355**, *Plates 179., 180.*
rimarima-alba 522, 527, **659**, *Plate 332.*, 699
robusta 379, 380, **395**, *Plate 198.*
rodrigueziana 720, 773

Masdevallia rolfeana 229, 402, 409, 415, 421, **425**, *Plate 213.*
rosea 603
roseola 522, 526, 617, **661**, *Plate 333.*
rufolutea 268, 295, 351
saltatrix 7
sanchezii 433, 434, 469, **491**, *Plate 244.*, 499
sanctae-fidei 14, 16, 21, 79, 119, 137, **165**, *Plates 81., 82.*, 239
sanctae-rosae 268, 269, **357**, *Plate 181.*
sanguinea 16, 17, 19, 97, **167**, *Plate 83.*
sarcophylla 268, 289
scabrilinguis 720, 722, 727, **765**, *Plate 386.*
scalpellifera 433, 436, **493**, *Plate 245.*
scandens 2, 520, 522, 523, 635, **663**, *Plate 334.*
scapha 16, 129
sceptrum 5, 7, 13, 16, 22, 69, 121, **169**, *Plates 84., 85.*, 171, 219, 253
schildhaueri 522, 563
schizopetala 433, 435, **495**, *Plates 246., 247.*, 497
schizostigma 433, 434, **499**, *Plate 248.*
schlimii 7, 11, 169, 171, 223, 224, **253**, *Plate 128.*, 627
var. polyantha 224, 253
var. sceptrum 16
schoonenii 522, 528, **665**, *Plate 335.*
schroederiana 402, 411, **427**, *Plate 214.*
var. fulvescens 402, 411
schudelii 16, 19, **173**, *Plate 86.*
scitula 16, 21, **175**, *Plate 87.*, 667
scobina 16, 18, 77, **177**, *Plate 88.*
scopaea 433, 435, **501**, *Plate 249.*
selenites 522, 524, **667**, *Plate 336.*
semiteres 268, 270, **359**, *Plate 182.*
senghasii 409
serendipita 16, 21, **179**, *Plate 89.*
sernae 14, 16, 21, 22, **181**, *Plates 90., 91.*
setipes 433, 436, **503**, *Plate 250.*
sijmiana 16, 151
soennemarkii 522, 526, **669**, *Plate 337.*
solomonii 522, 527, **671**, *Plate 338.*, 683
sororcula 268, 333
spilantha 268, 270, **361**, *Plate 183.*
sprucei 12, 16, 21, 163, **183**, *Plate 92.*, 224, 225
stenantha 522, 691
stenorhynchos 16, 20, **185**, *Plate 93.*
stercorea 268, 355
stirpis 16, 19, **187**, *Plate 94.*
striatella 12, 89, 224, 225, **255**, *Plates 129., 130.*, 257, 291, 413, 771
strobelii 643
Xstrumella 522, 523, **673**, *Plate 339.*
strumifera 520, 521, 522, 523, 673, **675**, *Plates 340., 341.*, 677
subumbellata 16, 35, 37
suinii 522, 527, **679**, *Plate 342.*
sulfurea 268, 279
sumapazensis 268, 269, **363**, *Plate 184.*
superflua 224, 255
surinamensis 720, 757
synthesis 16, 21, **189**, *Plate 95.*
syringodes 522, 523, 691, 693
tenuipes 720, 749
terborchii 522, 524, **681**, *Plates 343a., 343.*
theleüra 16, 17, **191**, *Plate 96.*
Masdevallia thienii 224, 225, 241, **259**, *Plate 131.*
tinekeae 522, 528, **683**, *Plate 344.*
titan 379, 380, 385, 387, 389, **397**, *Plate 199.*
tokachiorum 720, 721, **767**, *Plate 387.*
tonduzii 720, 722, **769**, *Plate 388.*
torta 6, 268, 269, **365**, *Plate 185.*
torulosa 16, 53
"torulosa" 459
tovarensis 14, 16, 22, 189, **193**, *Plate 97.*
trautmanniana 522, 526, **685**, *Plate 345.*
trechsliniana 16, 45
triangularis 317, 709
tridentata 16, 101
trigonopetala 522, 523, **687**, *Plate 346.*
trifurcata 433, 435, **505**, *Plate 251.*
"trifurcata" 443
trionyx 522, 567
triquetra 16, 101
trivenia 433, 479
trochilus 14, 16, 19, 141, 151, 155, **195**, *Plates 98., 99.*, 197
truncata 522, 525, **689**, *Plate 347.*
tsubotae 16, 20, **199**, *Plate 100.*
tubuliflora 719, 720, 721, 761, **771**, *Plate 389.*
tubulosa 319, 520, 522, 523, 539, 633, 673, 687, **691**, *Plates 348., 349., 350., 351.*, 693
subsp. syringodes 522, 691
tuerckheimii 720, 739, 740, 741
ulei 720, 773
uncifera 520, 521, 522, 525, 528, **697**, *Plate 352.*
uniflora *H.B.K.* 268, 279
uniflora *Ruiz & Pav.* 7, 175, 265, 281, 519, 520, 522, 524, 525, 659, **699**, *Plate 353.*
urceolaris 319, 520, 522, 528, **701**, *Plate 354.*
urostachya 16, 169
ustulata 522, 527, **703**, *Plates 355., 356.*, 705
utriculata 379, 380, **399**, *Plate 200.*
vargasii 15, 16, 18, 19, 71, 79, 117, 167, 199, **201**, *Plates 101., 102., 103., 104.*, 221
vasquezii 522, 527, **707**, *Plate 357.*
velifera 268, 271, 272, 311, 313, 331, **367**, *Plate 186.*
venus **207a**, *Plate 261.*
verecunda 415, 522, 523, **709**, *Plate 358.*
vieirana 433, 435, **507**, *Plate 252.*
virens 16, 17, **207**, *Plate 105.*
virgo-cuencae 16, 19, 20, **209**[1], *Plate 106., 106*[1].
vomeris 16, 21, **211**, *Plate 107.*
vulcanica 433, 439
wageneriana 7
walteri 402, **429**, *Plate 215.*
weberbaueri 15, 16, 17, 131, 191, **213**, *Plates 108., 109., 110.*
wendlandiana 720, 721, **773**, *Plate 390.*
wuerstlei 224, **261**, *Plate 132.*
"white uniflora" 659
whiteana 16, 18, **217**, *Plate 111.*
xanthura 16, 35, 37
xiphium 522, 563
xylina 16, 20, **219**, *Plate 112.*
yauaperiensis 720, 773
yungasensis 520, 522, 527, 531, 557, 635, 671, 707, **711**, *Plates 359., 360., 361., 362.*, 713
subsp. calocodon 522, 711, 713
zahlbruckneri 7, 119, 432, 433, 435, 477, 507, **509**, *Plates 253., 254., 255., 256.*, 511

Masdevallia zapatae 369, 370, **377**, *Plate 180.*
zebracea 522, 527, **717**, *Plate 363.*
zumbae 16, 18, 20, 199, **221**, *Plate 113.*
Ophidion 129
Peristeria elata 347
Platystele rauhii 359
Pleurothallis 1, 6, 129, 357, 431, 483, 755
subgen. Specklinia 6
Pleurothallis aphthosa 367
plantaginea 483
sanctae-rosae 357
Porroglossum 2
Rodrigoa bilabiata 353
Scaphosepalum 2
Scaphosepalum erinaceum 457, 755
panamense 753
Specklinia 483
Specklinia plantaginea 431, 483
"spathulata" 759
Stelis 1
Trisetella 2, 487
Zootrophion 129

Masdevallia acrochordonia Rchb.f., Xenia Orchidaceae 2: 213, 1874.

Ety.: From the Greek *akrochordon*, "a wart," referring to the warty interior of the sepals.

Syn.: *Masdevallia ephippium* var. *acrochordonia* (Rchb.f.) Woolward, Genus Masdevallia sub t. 43, 1892.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 2-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 10-13 cm long including the petiole ca. 2 cm long, the blade elliptical, subacute to obtuse, 2-2.2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a subcongested, successively flowered raceme, borne by a peduncle 20-25 cm long, with a bract at the base, from low on the ramicaul; floral bracts thin, tubular, 1.5-1.8 cm long; pedicel 2 cm long; ovary 6 mm long; **dorsal sepal** yellow, obovate, 15 mm long, 10 mm wide, 3-veined, connate to the lateral sepals for 5 mm to form a cylindrical sepaline tube, the subacute, free portion ovate, contracted into a slender, erect tail ca. 5 cm long; **lateral sepals** red-brown to purple-brown, connate 33 mm to form a shallowly concave, not abruptly inflated, elliptical synsepal 35 mm long, 26 mm wide unexpanded, with the veins prominent within, the apices obtuse, approximate, contracted into slender tails less than 3 cm long; **petals** white, oblong, 7 mm long, 2 mm wide, the apex acute, the labellar half longitudinally callous-thickened, with a low, rounded protrusion above the base; **lip** white, diffusely dotted with purple, oblong-pandurate, 7 mm long, 2.5 mm wide, with obtuse marginal folds near the middle, the epichile ovate, obtuse, shortly acuminate, with a minutely verrucose callus beneath, the hypochile narrowly oblong, the base subcordate, hinged on the end; **column** white with purple margins, semiterete, 6 mm long, the foot stout, 2 mm long, with a short, incurved extension.

ECUADOR: **Loja**: "Loja," collected by Dr. Krause, cultivated, 20 April 1874, by *Mr. Backhouse s.n.* (holotype: W); "Loja," cultivated by Sander 1883, collected by *G. Hübsch s.n.* (W). **Zamora-Chinchipe**: between Loja and Zamora, alt. 2200 m, Apr. 2000, *J. Portilla 1115* (MO), C. Luer 19367.

At the same time as *M. ephippium* (*M. trochilus*) this species was described by Reichenbach in 1874. It was treated by Woolward as a variation of *M. ephippium* in her monograph *The Genus Masdevallia* in 1896. It is indeed similar, and it grows in a limited area in southern Ecuador within the geographical distribution of the latter, where it was first collected by Dr. Krause. Reichenbach distinguished the latter for smaller flowers with narrower, less involute sepals.

Masdevallia acrochordonia is distinguished by a large habit, but not as large and robust as the average *M. trochilus*, and flowers smaller than the average of those of *M. trochilus*. It differs from *M. trochilus* by shorter peduncles, a shorter sepaline tube, and a shallowly concave, boat-like synsepal, the bottom of which is not abruptly inflated. The curved sides are more or less erect with the interior exposed. The petals are acute at the apex and the hypochile of the pandurate lip is significantly broader.

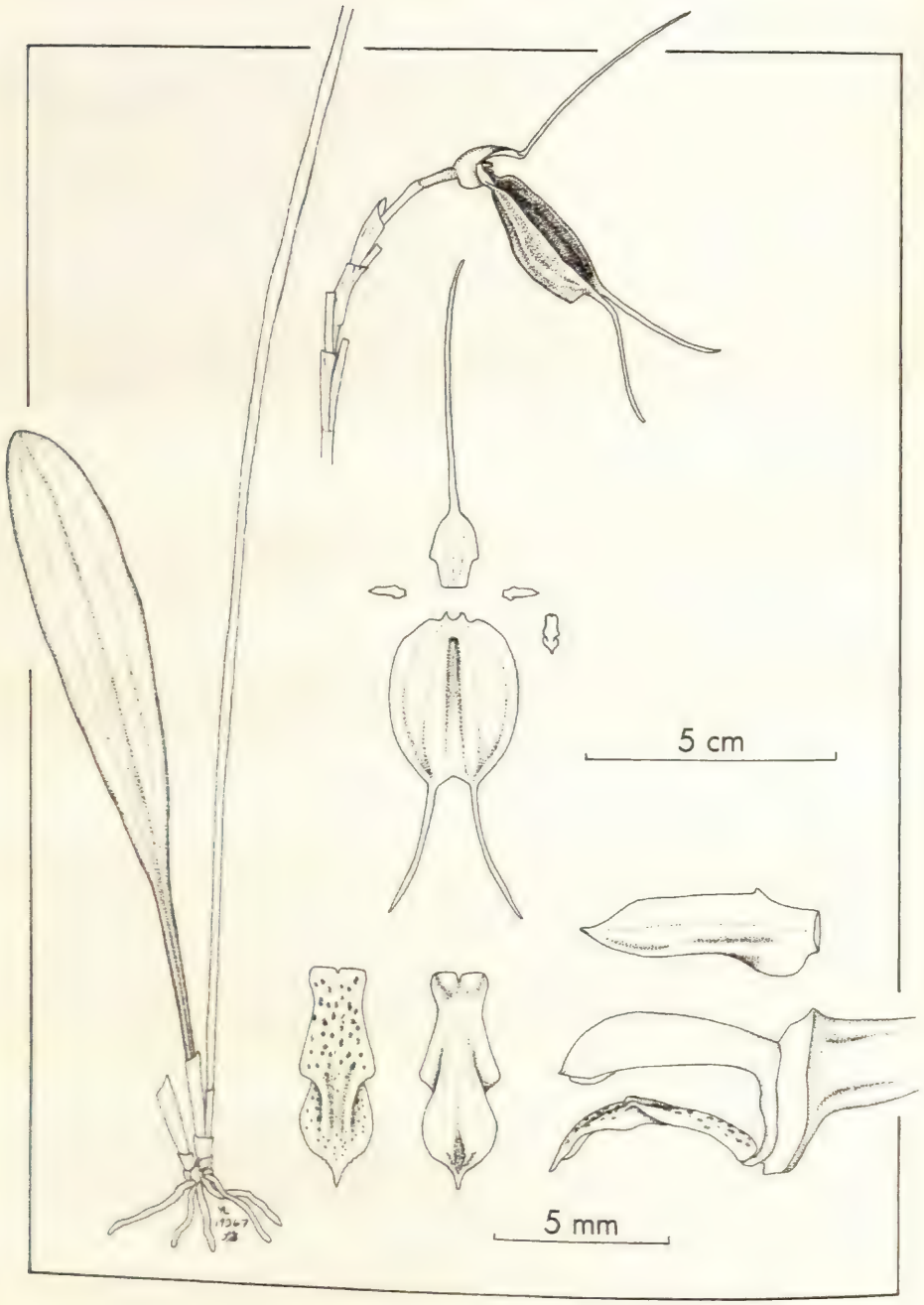


Plate 391. Masdevallia acrochordonia

Masdevallia frilehmannii Luer & Vásquez, Rev. Soc. Bol. Bot. 3: 39, 2001.

Ety.: Named for Friedrich Lehmann, who supported orchid research in Bolivia.

Plant medium in size, epiphytic, caespitose; roots fleshy. Ramicauls stout, erect, 1.5-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, 11-12 cm long including an indistinct petiole ca. 2 cm long, the blade narrowly elliptical, subacute, 1.5 cm wide, cuneate below into the base. **Inflorescence** a solitary flower borne successively in a congested raceme up to 2 cm long, by a straight, erect, triquetrous peduncle 16 cm long, with a tubular sheath at the base, from the base of the ramicaul; floral bracts imbricating, 15 mm long; pedicels 15-18 mm long; ovary 5-6 mm long; **sepals** yellow-green with the lateral sepals suffused with light purple, darker rose-purple within, glabrous, the dorsal sepal elliptical, concave, 20 mm long, 8 mm wide, 3-veined, connate to the lateral sepals for 17 mm into an ovoid sepaline tube, the apex obtuse, contracted into a slender, recurved, light yellow tail 5-6 cm long, the lateral sepals deeply connate into an obovate lamina, 17 mm long, 22 mm wide expanded, 6-veined, with the contiguous apices transverse, abruptly contracted at the medial angle into slender, light yellow, up-curved tails 4-5 cm long; **petals** cartilaginous, elliptical, apiculate at the obtuse apex, with both halves longitudinally callous, 6.5 mm long, 2 mm wide, 1-veined; **lip** oblong, with marginal folds slightly above the middle, 8 mm long, 2.5 mm wide, the epichile ovate, obtuse, apiculate, with minutely irregular margins, shallowly channeled between a pair of parallel calli, the hypochile oblong, the base truncate, hinged to the column-foot; **column** semiterete, 5 mm long, the foot 3 mm long with an incurved extension, the anther and stigma ventral.

BOLIVIA: **La Paz**: Prov. Iturralde, Parqué Nacional Madidi, road between Tumupasa and San José, near crest of Serrania Mamuque, alt. 750 m, 9 Aug. 2000, *T. Krömer 1409* (Holotype: LPB; Isotypes: MO, VASQ), C. Luer illustr. 19432.

This species is apparently endemic in northern Bolivia at a low altitude. Vegetatively, the narrow leaf is not remarkable, nor is the strict, triquetrous peduncle that is a little longer than the leaf. The flower, however, is unique. The sepals are deeply connate into an inflated, ovoid tube with a constricted aperture, more similar to that of *M. encephala* of subgenus *Masdevallia* than to the few species of subgenus *Polyantha* with an inflated sepaline tube.

At the orifice of the tube, the sepals are abruptly contracted into slender tails. The tail of the dorsal sepal recurves, then more or less curves forward. The tails of the lateral sepals begin in apposition, then gracefully curve upward as they separate. Within the tube the apiculate petals, lip and column are not remarkable.

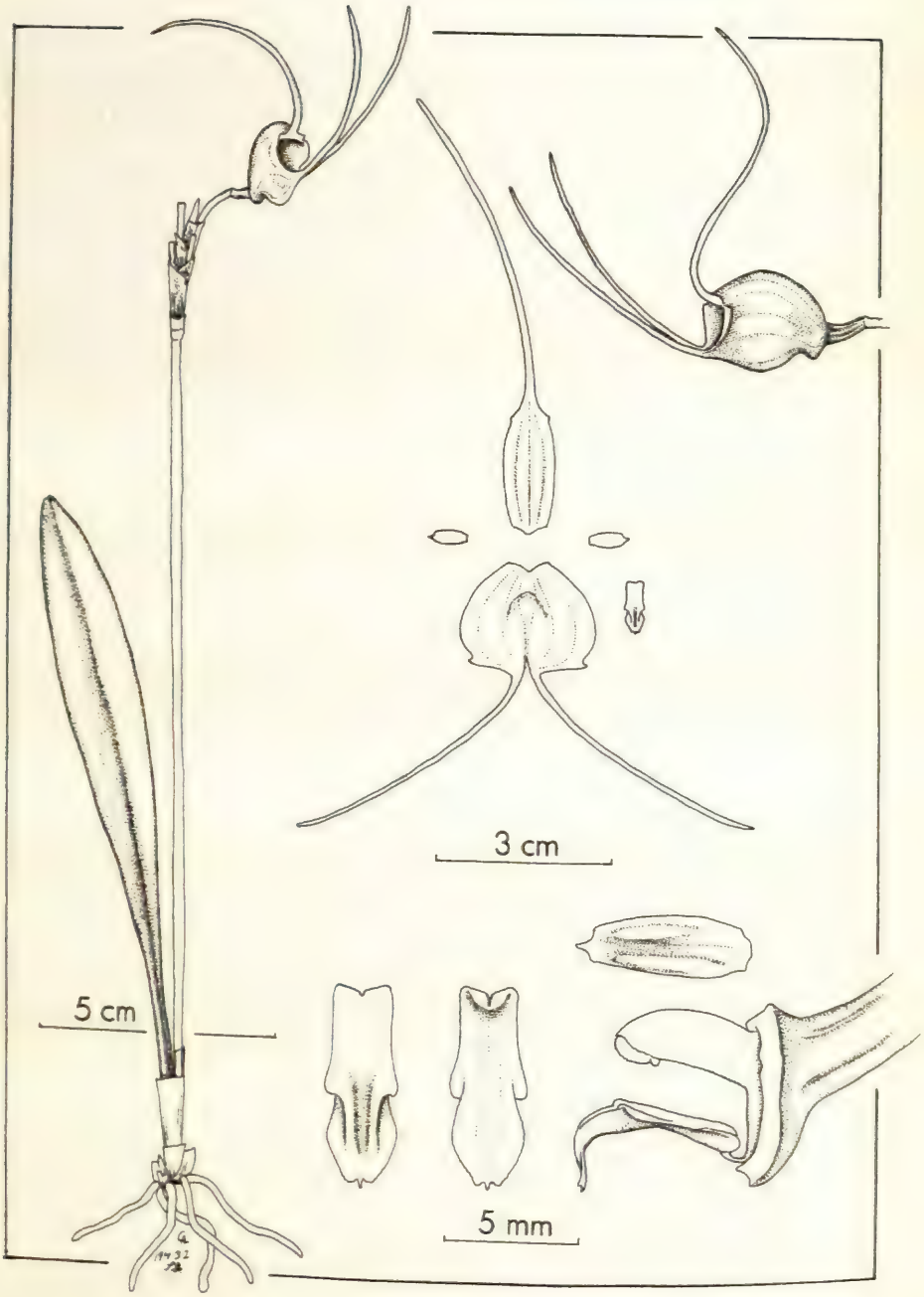


Plate 392. Masdevallia frilehmannii

Masdevallia luziae-mariae Luer & Vásquez, Rev. Soc. Bol. Bot. 3: 41, 2001.

Ety.: Named for Luz1a Maria Boerner, who supported orchid research in Bolivia.

Plant large to medium in size, epiphytic, caespitose; roots fleshy. Ramicauls stout, erect, 2-2.5 cm long, enclosed by an inflated, tubular sheath, and another 1-2 sheaths at the base. **Leaf** erect, thickly coriaceous, 15-18 cm long including an indistinct petiole ca. 2 cm long, the blade narrowly obovate, subacute, 2-2.5 cm wide, cuneate below into the base. **Inflorescence** a solitary flower borne successively in a congested raceme up to 1 or more cm long, by a straight, erect, triquetrous peduncle 7-8 cm long, with a tubular sheath at the base, from the base of the ramicaul; floral bracts imbricating, 15-17 mm long; pedicels 15-20 mm long; ovary 5-6 mm long; **sepals** carinate, yellow-brown, the synsepal intensely dotted with red-brown, minutely subverrucose externally, sparsely minutely pubescent within, the dorsal sepal elliptical, 15-17 mm long, 10 mm wide, 3-veined, connate to the lateral sepals for 6 mm into a cylindrical sepaline tube, the apex acute, contracted into a slender, erect, light yellow tail 5-6 cm long, the lateral sepals connate 22 mm into a suborbicular lamina, 27 mm long, 30 mm wide expanded, 6-veined, with the apices broadly obtuse, abruptly contracted into slender, descending tails 2-2.5 cm long; **petals** cartilaginous, narrowly oblong, obscurely bilobed at the apex, with the lower half with a low, longitudinal callus, ending in a rounded callus at the base, 8.5 mm long, 1.75 mm wide, 1-veined; **lip** oblong-subpandurate, with marginal folds above the middle, 6 mm long, 2.5 mm wide, the epichile ovate, subverrucose, obtuse, with the tip decurved and apiculate, with minutely irregular margins, shallowly channeled between a pair of parallel calli, the hypochile oblong, the base truncate, hinged to the column-foot; **column** semiterete, 5 mm long, the foot 3 mm long with an incurved extension, the anther and stigma ventral.

BOLIVIA: **La Paz**: Prov. Nor Yungas, Parqué Nacional Cotapata, alt. 1550 m, 4 Apr. 2000, *T. Krömer & A. Acebey 985* (Holotype: LPB; Isotypes: MO, VASQ), C. Luer illustr. 19437.

This species is apparently endemic in the Nor Yungas of the department of La Paz of Bolivia at a relatively low altitude. It is characterized by the large, narrowly obovate leaf that is about twice as long as the triquetrous peduncle. The flower is large with a broadly expanded synsepal beyond the short, cylindrical sepaline tube. The tail of the dorsal sepal is elongate and erect, while the tails of the lateral sepals are shorter and descending. Narrow, elongated petals protrude a short distance from the orifice of the tube. The plicate lip is narrowed above the middle with the apex decurved and apiculate.

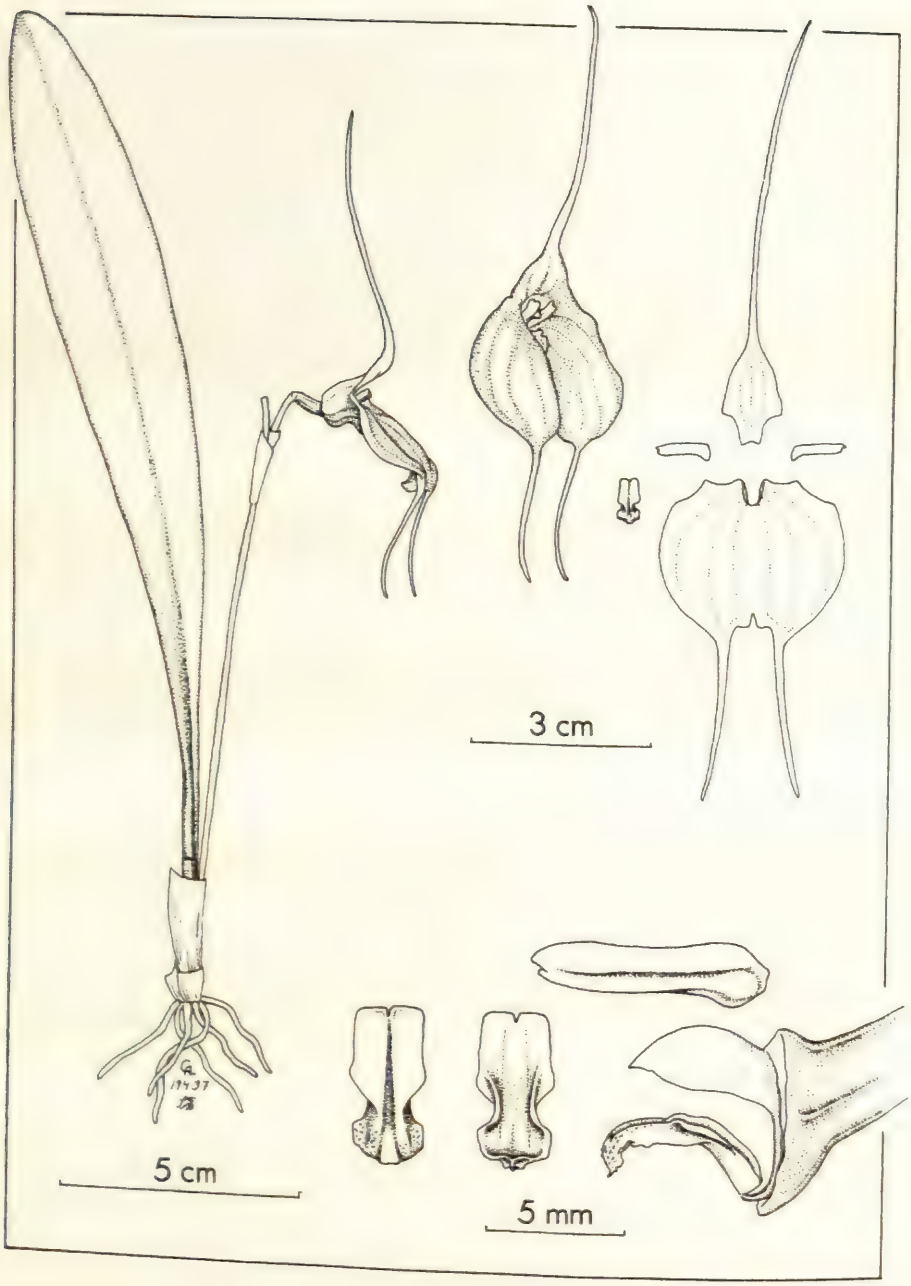


Plate 393. Masdevallia luziae-mariae

Masdevallia virgo-cuencae Luer & Andreetta, Phytologia 39: 232, 1978.

Ety.: From the Latin *virgo*, "a maiden," and *Cuencae*, "of Cuenca," a translation of the local "chola cuencana," the maiden of Cuenca.

Plant medium to large in size, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 1-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, elliptical, subacute, 8-12 cm long, 2-3 cm wide, cuneate below into a channeled, indistinctly petiolate base. **Inflorescence** a congested, successively several-flowered raceme up to 2 cm long, borne by a stout, erect, triquetrous peduncle 14-21 cm long, 6 mm wide at the apex, subtended by a tubular bract, from the base of a ramicaul; floral bracts thin, tubular, imbricating 8-17 mm long; pedicel 17-28 mm long; ovary 5 mm long; **dorsal sepal** yellow, minutely speckled with red within, obovate, concave, 30 mm long, 10-11 mm wide, connate to the lateral sepals for 15 mm to form a broad, arcuate, sepaline tube, the free portion triangular, deflexed, the acute apex produced into a slender, recurved, orange tail ca. 35 mm long; **lateral sepals** light purple, darker purple in stripes along the nerves, cellular-papillose within, connate 30 mm into a deflexed, elliptical, bifid lamina 40 mm long, 25 mm wide, the acute apices approximate, produced into slender, green tails ca. 15 mm long; **petals** white, oblong, 7.5 mm long, 3 mm wide, the obtuse apex obscurely toothed, the lower half with a low, longitudinal callus; **lip** white, diffusely flecked with purple, oblong-subpandurate, 6 mm long, 2 mm wide, with obtuse marginal folds near the middle, the epichile ovate, acute, denticulate, papillose, the hypochile oblong, thickened, the base rounded, hinged below; **column** white, edged in purple, semiterete, 5.5 mm long, the foot 3 mm long with an incurved extension.

ECUADOR: **IN ERROR: Azuay**: reportedly found in a valley above Machangara northwest of Cuenca, alt. 2700 m, Feb. 1977, by A. Andreetta, cultivated in Cuenca, 12 July 1977, *C. Luer 1688* (Holotype: SEL); same collection, cultivated at Paute, 24 May 1988, *C. Luer 13636* (MO). **Morona-Santiago**: north of Macas, near Sinai, alt. ca. 900 m, collected by J. Portilla and A. Andreetta, Feb. 1992, cultivated at Ecuagenera, Gualaceo, 7 Mar. 2001, *C. Luer 19799* (MO).

Long known only from descendents of one plant of questionable origin, the true locality of this showy species has finally been discovered on the eastern slope of Ecuador at a relatively low altitude by José Portilla and Father Andreetta. It had become widely cultivated following successful propagation by seed.

The large flower is borne successively in a congested raceme by a tall, triquetrous peduncle. The sepals are connate into a proportionately short, cylindrical tube. The long tail of the yellow dorsal sepal curves gracefully upward while the broadly expanded, velvety rose synsepal, commonly more or less twisted and terminated by a pair of short, approximate tails, descends. The petals are oblong with the lower half callous without a protuberance. The lip is oblong with obtuse folds at the middle, and with the epichile spiculate.

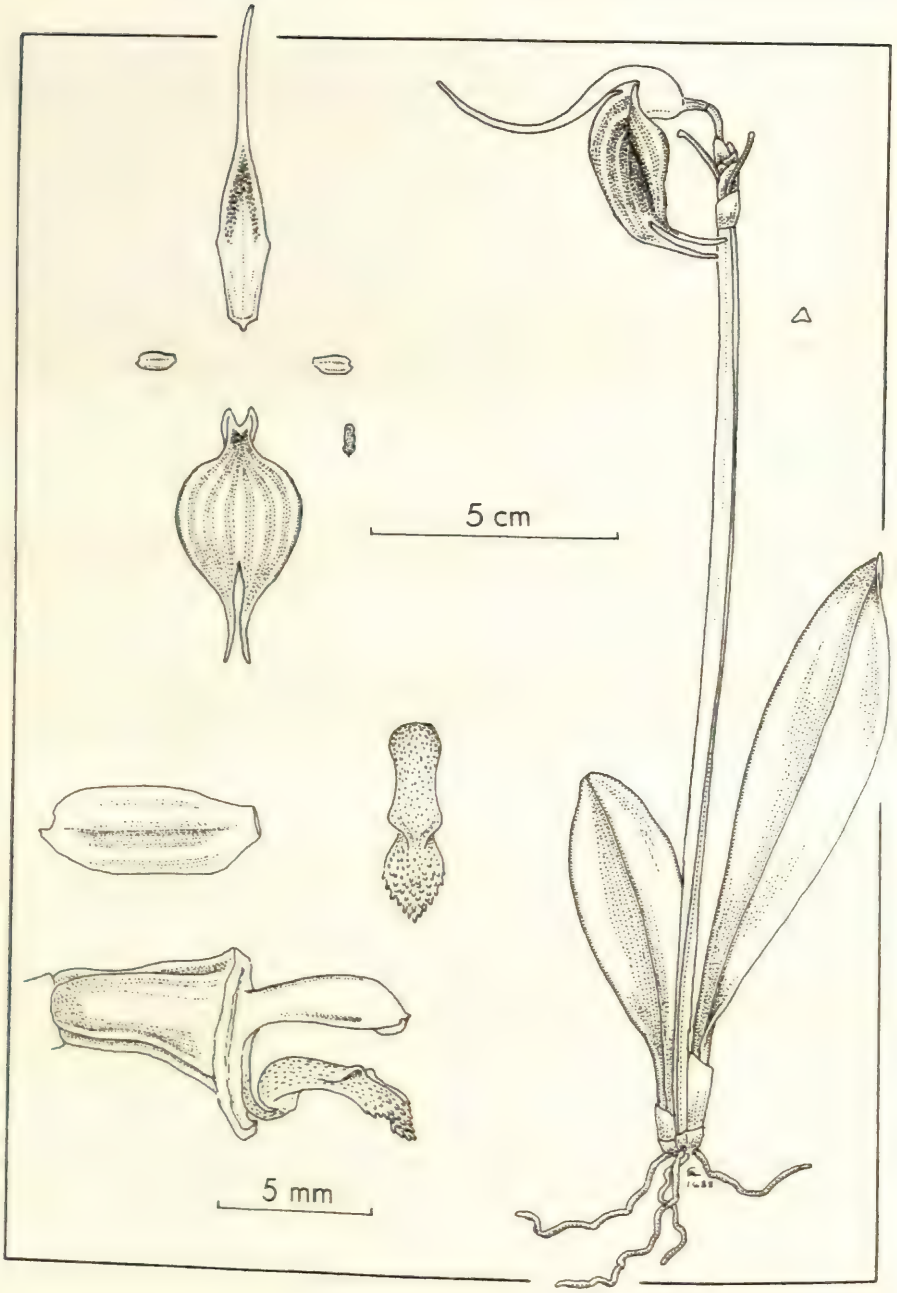


Plate 106. Masdevallia virgo-cuencae

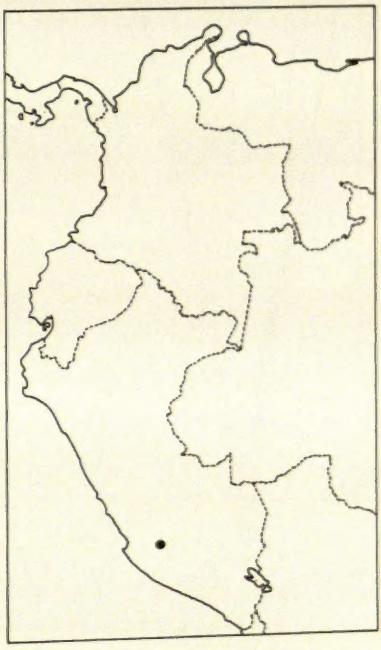
Masdevallia idae Luer & Arias, sp. nov.

Ety.: Named in honor of Sra. Ida Fernandez, first president of the Club Peruano de Orquídeas.

Species haec *M. amabilis* Rchb.f. & Warsz. affinis, sed folio longipetiolato, flore aurantiaco, petalorum callis ad basim crassissimis incurvatis, et labello oblongo quam petalis columnaque minore differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls black, erect, slender, 5-7 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 9-11 cm long including the petiole ca. 4 cm long, the blade narrowly elliptical, subacute, 1.5-1.8 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a solitary flower borne by a slender peduncle 13-16 cm long, with a bract near the base, from low on the ramicaul; floral bract thin, tubular, 1.5 cm long; pedicel 3-4 cm long; ovary 4-7 mm long; **sepals** orange, microscopically pubescent within, the dorsal sepal obovate, shallowly concave, ca. 20 mm long, 12 mm wide, 3-veined, connate to the lateral sepals for 7-10 mm to form a sepaline tube, the apex obtuse, acuminate into a slender, red-orange tail ca. 20 mm long, the lateral sepals connate 18 mm into a broad, bifid synsepal, ca. 30 mm long, 25 mm wide, with a mentum below the column-foot, the apices acute, acuminate into tails 6-8 mm long; **petals** white, oblong, slightly curved, 6 mm long, 1.5 mm wide, the apex rounded, the labellar margin with a longitudinal carina ending in a thick, blunt, recurved, retrorse process at the base; **lip** white, oblong, 4.5 mm long, 2 mm wide, the apex rounded, recurved, suffused with purple, the disc featureless, the base truncate, hinged beneath; **column** white, semiterete, 5.5 mm long, slightly uneven at the apex, the foot thick, 2 mm long with the extension.

PERU: **Ayacucho**: Huanta, Pachamanca, epiphytic, alt. 2200 m, collected by Silvano Flores, cultivated in Lima, Sept. 1999, by *M. Arias s.n.* (MO), C. Luer illustr. 19362.



Instead of lithophytic or terrestrial as with most other Peruvian members of the subsection *Coccineae*, this species is epiphytic. Although this subsection has not yet been treated, this species is included here because it is in the trade.

Vegetatively, the plant is distinguished by long-petiolate leaves that are surpassed by the slender peduncle. Similar to *M. amabilis*, the lateral sepals are connate into a blade beyond the narrow, sepaline tube. The orange color of the flower is similar to that of many of the color variations of *M. amabilis*. The apices of the lateral sepals are acute and tapered into short tails. The marginal callus of the petals terminates with a thick, retrorse, uncinate process. The oblong lip is smaller than the petals and column.

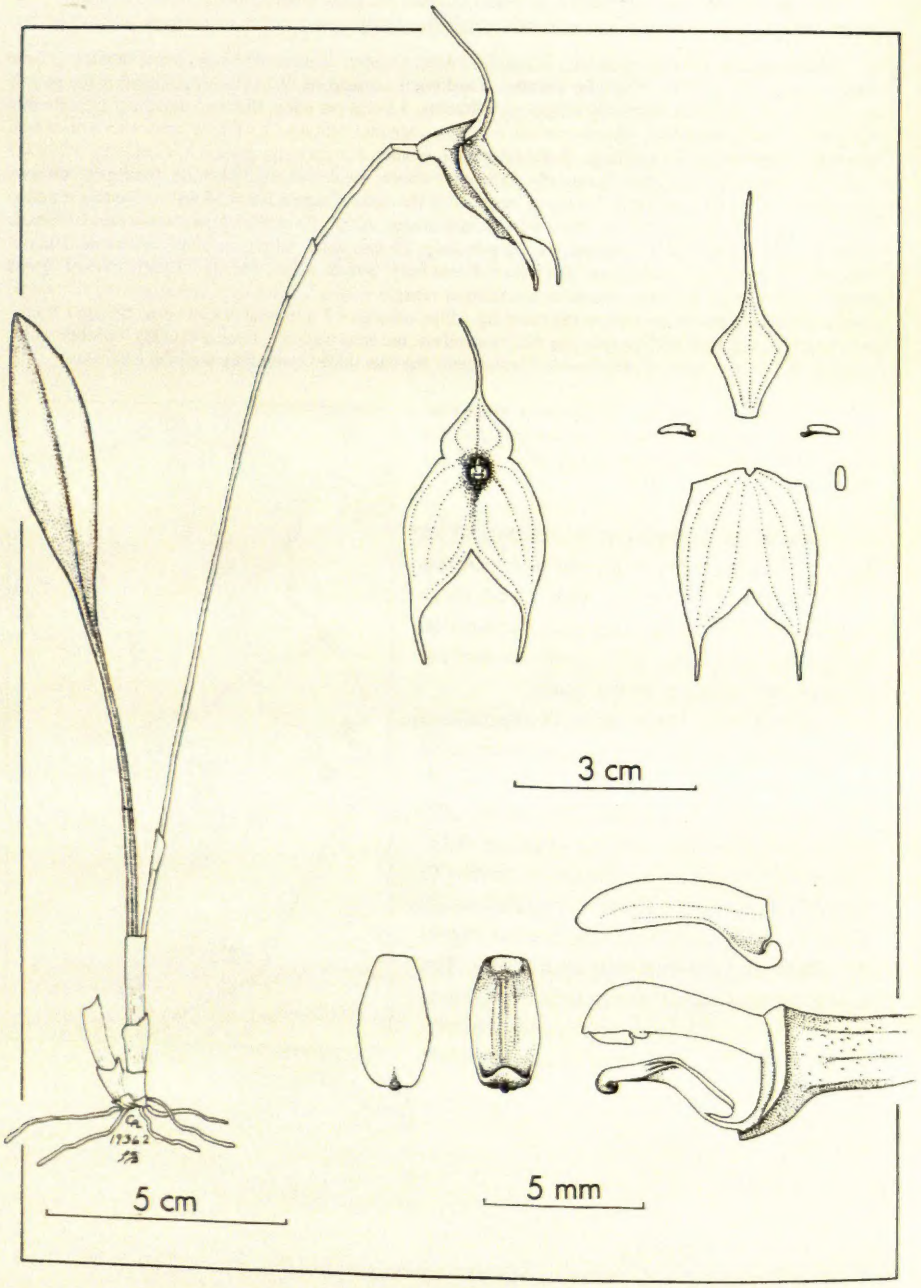


Plate A1. Masdevallia idae

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